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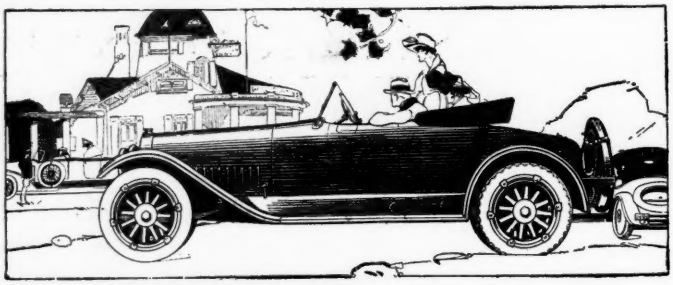

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THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. I.—5TH YEAR. SYDNEY: SATURDAY, JANUARY 12, 1918. No 2.

SURGICAL NOTES FROM THE WESTERN FRONT DURING THE SUMMER FIGHTING OF 1917.[1]

By **E. H. Burkitt, M.B., Syd.,**

Major, Australian Army Medical Corps, No. 2 Australian Casualty Clearing Station.

Notes from an Australian Casualty Clearing Station have already been contributed to this Journal, but some account of its work during a *Straf* may prove of interest, and show to those who have not yet had the opportunity of being there, that an attractive field of work lies open in the battalion, ambulances, and clearing stations, particularly since the promised interchange of officers between these various units is already in vogue in several of our armies.

Those who can make the opportunity hardly need a reminder that there are many officers, with pressing home-claims, who have been a long time at the front, and need relief. Moreover, there will be ample work for many surgeons in the spring.

The scope of the surgery to be carried out at a casualty clearing station is continually increasing, and it is already recognized that if a casualty clearing station does its work efficiently, the majority of cases should require but little treatment at the bases in France.

During last winter, fortnightly meetings of the medical societies of each army were held. These were attended very largely by medical officers from battalions, ambulances, and casualty clearing station. Papers were read in all branches of war surgery and medicine, and many of the most eminent surgeons and physicians took part in the discussions. The result was closer collaboration and understanding between the various units through which the wounded pass and at least some uniformity of treatment. Experience on the Somme fighting of 1916, of the overstrain entailed upon the surgical staffs, which were largely strengthened by individual reinforcements, and which worked continuously until all cases on hand had been dealt with, led to the introduction of the team system." A few days before a *Straf* was to begin, each casualty clearing station in its vicinity was reinforced by three or four visiting teams, consisting of surgeon, anæsthetist, theatre sister, and one or two orderlies, who had been accustomed to work together. These teams were drawn from casualty clearing stations in quiet areas. Upon arrival a team was allotted a table in the theatre and equipment, and its hours of duty and of rest. It was necessary for each team to work in the theatre sixteen hours and rest eight. With ample time allowed for meals, these long hours were stood by all of our teams without breaking up. Eight hours absolutely off duty compensated for much. I had the good fortune to take an Australian team to No. --, a Royal Army Medical Corps casualty clearing station behind Arras, where our first receptions were the Canadians, who had taken Vimy Ridge. Here the local and visiting teams included some excellent surgeons, and we had constant visits from Sir Anthony Bowlby, General Irwin and Colonel H. M. W. Gray. The last named is the Consulting Surgeon to the third army. His advice and help were always ready at hand, and few have contributed more than he in the inculcation of sound surgical principles in this war. We were much impressed with the methodical administration of No. — and the efficiency of the medical services in the third army. Though 1,000 wounded passed through this casualty clearing station while we were there, and often three hospital trains were loaded in a day, no hitch occurred.

No. — was grouped with three other casualty clearing stations in the same village; such grouping is essential to convenient working. Each in turn received 300 "mixed" or 150 "lying cases," and then switched on to the next, which had already been warned by the traffic police. It was generally possible to deal with one "take in," and clean up before the next began. A rapid but thorough cleansing of every ward followed each evacuation.

At No. 2 Australian Casualty Clearing Station we were isolated during our busiest time through the compulsory and unexpected moving of those casualty clearing stations which should have been our colleagues. As a result we were for a time receiving from a whole army corps, and for six months we received every day. To receive, operate, carry on ward duties, and evacuate without pause involves a very great strain upon a staff, however reinforced. During the first twenty hours of the Messines battle, of which, from the distance, we were able to watch the initial terrific explosions, and the magnificent hurricane fire, we received 2,067 wounded, and evacuated 2,000 in the same time. Our dentist, of more peaceful times, carried out the evacuation and, with the matron, saw to the feeding of all the "walkers," in itself no small task. In the first few days of a push the number of casualties is greatest, but amongst them is a large proportion of bullet wounds, and minor injuries. In the succeeding period, however, when our troops occupy the captured Hun positions, they are continually plastered day and night with high explosives, and the casualties are still very numerous, and almost all multiple and frightfully severe. Day by day, too, the carry from our front-line trenches becomes longer and more difficult over the shell-torn ground, and it is here that the inevitable loss of time occurs. A few extra miles in a motor ambulance make no very great difference, but an extra half-mile by stretcher is a serious matter.

The Messines battle began on June 7th. During June our major operations numbered 1,068, in July

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on November 30, 1917.

869, in the first eleven days of August 419. These were the numbers of patients operated, many of whom had multiple injuries. A very large number of lighter cases were operated in the Dressing Hut during the same period, the total number of men admitted being 16,357, of whom 452 died and 15,775 were evacuated. At Messines, as at Arras, the ambulances did their work most excellently, and it was very rare to receive a compound fracture in anything but good shape. The Thomas's splint was invaluable. It is best applied at the Advanced Dressing Station. Boots, puttees, and trousers are left on, until the patient is anæsthetized in the theatre at the casualty clearing station. A clove hitch over the boot makes the necessary extension, a long ham splint of Gooch's splinting with slings of bandage is used, and a wire foot rest is sprung on to the Thomas's splint. The long Liston had proved most inadequate for transport, though, until this year, it was the only splint issued to ambulances for fractured femurs.

Upon arrival at the casualty clearing station, a convoy of motor ambulances pulls up at the receiving hut, drops its load, and passes out by a separate exit. In the receiving hut, while the clerks take particulars of the patients, and pass the lightly wounded across to the dressing hut, half a dozen quick orderlies cut off clothing from those seriously wounded, and put on pyjamas, thereby saving the carriage of much mud and gear into the wards. Lightly wounded pass from the dressing hut to tents for immediate evacuation after being fed. The others pass to the "resuscitation ward," and are here carefully classed by the medical officer in charge as for immediate operation, X-ray examination, or resuscitation. If for the last, it is the duty of the medical officer to see to the subcutaneous, rectal or intravenous administration of saline solution or other treatment, and also to watch the theatre, and bespeak a surgeon for an urgent case at the right moment. Judgement, and much experience are needed on the part of the medical officer and sister in charge of the resuscitation ward. We find that nearly every patient is the better for one or two hours' rest before operation; some require much more. While shock is being overcome, sepsis is establishing itself, so that when once sufficient resuscitation is achieved, no time may be lost.

In April the weather was very cold, and patients arrived very collapsed. No efficient system of warming the motor ambulances is at present in use. Hot bottles have to be mainly relied upon. In the ward we occasionally use an extemporized hot air cage. Fresh warm tea is the most useful restorative. A high drip rectal saline with or without glucose, when retained, is, I think, preferable to subcutaneous or intravenous injections of saline solution before operation. During anæsthesia, the anæsthetist gives normal saline solution beneath the pectorals or intravenously, or calcium gum and hypertonic saline solution (300 c.cm.) intravenously. The last, I think, is the best. Camphor given subcutaneously is the best of the hypodermics. Transfusion of whole blood has given some brilliant results, and is gradually being more widely practised. We use the syringe method recommended by Major Robertson, of the Canadian Army Medical Corps (*British Medical Journal*, August 16, 1916), and find that, including the preliminary steps, it takes less than a quarter of an hour to give a transfusion of 500 c.cm. of whole blood. Though we have aimed at giving 500 c.cm., the average amount actually given in our first 10 cases was only 380 c.cm., clotting of the donor's blood in or above his cannula being the usual cause of cessation. This amount is always supplemented by 100 c.cm. of normal saline solution, and proved sufficient in several cases. The donors are selected from attached helpers or from patients, with such minor injuries as sprained ankles. No preliminary blood tests are made, nor are such likely to be feasible in busy times.

From "resuscitation" the patient passes to the X-ray Department or to the theatre direct. Of 2,350 cases operated after Messines, 1,600 required X-rays, nearly all of these being for localization of missiles. In this busy time, plates were only taken in exceptional cases. Localization was done by screening. The surgeon met his patient for the first time upon the operating table, and looked immediately for anilin pencil spots and strokes indicating the locality and depth of the foreign bodies, which were also roughly sketched by the radiographer, and detailed upon a chit, the last being pinned to the Smith-Dorrien bag. This bag is supplied in the receiving room, and labelled with the soldier's name and number. It contains his valuables, and never leaves him.

Rapidity in recovery of foreign bodies by the best route, and judgement of how long and how far to go in pursuit of the more wily ones, can only be gained by experience. Time is always a most important consideration, both on account of the patient's condition, and for the sake of others waiting. Still one came to feel a case a failure with all the horrors of anaerobic infection ahead if a foreign body were left behind. As far as we could gather we recovered well over 80% of all foreign bodies. We shall not soon forget the splendid work of Major Gibson recently, and of Corporal W. Jones, since the birth of the unit, in the X-ray Department, which worked continuously day and night for months on end.

In the main theatre, three tables were constantly in use, a fourth being available for emergency. When an operation was nearly over, the anæsthetist often commenced to administer the anæsthetic to the next patient lying upon a stretcher in the waiting shelter. No extra gear was allowed in the theatre, a free through gangway being essential.

Abdomens are dealt with in a small theatre cut off from the end of the "abdominal ward." This additional theatre entails rather a considerable amount of work, since hot water is not laid on, and sterilizing has to be done by Primus stoves, and its value has been sometimes in dispute. Personally, I think it is a necessity, and worth all the additional trouble, but at least one of my colleagues holds strong views upon the question of making a "god of one's belly,"

when as many as 40 general cases may be awaiting operation.

A clerk is constantly in attendance in the theatre. Towards the end of an operation, he writes full notes, at the surgeon's dictation, upon the Field Medical Card, and copies the same into the Operation Record Book. The card, of course, accompanies the patient to the base. From the theatre the patient passes either to the "post-operative observation" ward, or to an "immediate evacuation" ward. In either case, a brief chit as to treatment accompanies him, particularly noting the number and position of Carrel tubes, if these are used.

Patients undergoing abdominal operations are retained at the casualty clearing station at least a week; those with wounds of the head and chest ten days. The men with compound fractures and multiple wounds are evacuated by the first available train, if we are satisfied with our job, but held for observation if there is doubt. After amputations, ligation of main vessels, and operation on the knee joint the patients are retained for 48 hours, if possible. Correspondence cards from the surgeon to the medical officer in charge of the patient at the base in France, and at the English base hospital accompany him when the case is of interest. These cards are returned very regularly from some hospitals; but not so from others.

Notes Upon Treatment of Battle Injuries.

The following notes upon treatment are offered with every apology. They are fragmentary, and probably tell of nothing quite new. Still anything that is advocated in them, has stood the test of thorough trial, and one has learned as much from the post-mortem room as from favourable reports from the base. Much that has been written in the few text books which have been published during the war, would now need modification. "The Treatment of Infected Wounds," however, by Carrel and Dehelly is gospel from cover to cover, and a booklet on the "Surgical Treatment of War Wounds," comprising papers read in the Third Army gives in detail the best treatment of the various injuries up to February, 1917, and is full of useful tips.

Infected Wounds.

Patients usually arrive smothered in mud with grossly infected wounds. The wound areas have had as much cleansing as is permissible at the ambulances, but this is, in shocked cases, very little. Under anæsthesia the skin is washed thoroughly with soft or "Lifebuoy" soap and warm water by means of gauge swabs or cotton washers. Nail-brushes should not be used. A rubbing with methylated spirit follows, and finally a painting with picric acid, 3% in spirit. Small and shallow wounds are freely excised and usually dressed with the bismuth, iodoform and paraffin, known as "B.I.P." If a silkworm gut suture be inserted and left long, it can be tied in a day or two.

For the treatment of large, ragged wounds the term "conical excision" which was formerly used, is mischievous, and led to unnecessary mutilation in early days. What is needed is the rapid, wide, clean dissection. The skin margins should be excised only to a width of about five millimetres, and a muscular excision should not be carried as a rule to a greater depth into healthy muscle than two millimetres. Every particle of badly damaged muscle and fascia should be cleanly dissected away with a very sharp scalpel. The length of the wound should be increased by an incision parallel to muscular fibres or along vascular tracts, or intermuscular planes. Increased length does not hinder but rather accelerates the ultimate closure. Tension should not only be relieved but anticipated, since its presence with the consequent vascular embarrassment is a most potent factor in the causation of gas-gangrene. Wounds of the fore-arm may need partial division of the bicipital fascia; in the leg it may be necessary to carry the incision through the annular ligament. Tension in the calf will often need an incision through the length of the popliteal space and inspection and relaxation of the opening in the *adductor magnus*. Where it is necessary to incise fascial and aponeurotic structures, silk-worm gut sutures should always be inserted, and left long. Hæmatomata must be completely evacuated. These form to an enormous size in the thigh and calf when femoral or profunda or popliteal or posterior tibial vessels are wounded, and having burst the vascular sheaths, the hæmorrhage dissects the muscles fibre from fibre almost beyond recognition, establishing ideal conditions for gas-gangrene. So often has the posterior tibial artery been wounded that it is said that the Hun knows how to snipe it.

It is no child's play to ligate a posterior tibial in a pulped calf. The importance of complete hæmostasis cannot be over estimated. With very foul and ragged wounds, a few moments may well be spent before commencing the dissection, in freely flooding the wound area with a mixture of saturated solution of potassium permanganate, 1 c.cm. to 100 c.cm. of hydrogen peroxide. The detergent action of this mixture is infinitely more active than that of plain peroxide. In a few moments the foulest wound is inodorous, much loose débris floats away and the bright pink muscles are quickly differentiated from the badly damaged tissues which need resection. When the dissection of one wound is completed, it is filled up with Dakin's solution, which should be carefully run into every interstice, and refilled from time to time, whilst succeeding wounds are dealt with.

A wound having been thoroughly cleaned, several choices are open. Those we use are:—

(1) the salt pack,
(2) dressing with "B.I.P." or chloramine-T., and
(3) Carrel's method.

The two first named methods are quick and economical, and minimize the dressings until the patient reaches the base. These are points of great value during times of stress.

The salt pack is still much used for amputation stumps, though the fact that it causes a copious outpouring of serum, must contra-indicate it in cases where the vascular system is already depleted by hæmorrhage. In irregular large wounds and par-

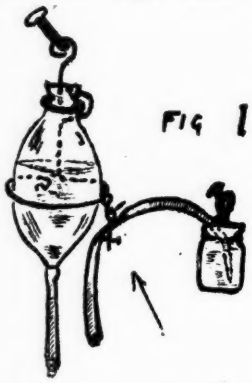
ticularly in the neighbourhood of vessels the salt pack has given way to "B.I.P." This latter is admirable if properly applied. When it was first introduced, wounds were filled with it and sewn up. Some cases of iodoform and bismuth poisoning occurred, and though the wounds remained wholesome and gas-gangrene and suppuration were averted, the material remained as a foreign body, inhibited granulation, and was difficult of removal. Better methods and admirable results have, however, converted those of us who were most biassed against what appeared to be a crude and unsurgical treatment.

Of various techniques now practised the following is a good one. After a preliminary rinsing of the wound with spirit or ether, the paste is rubbed with the gloved fingers or gauze into every portion. Gauze, two or three layers thick, thinly spread with "B.I.P.," is carefully and closely laid throughout the wound, and tucked lightly but snugly into every interstice. Next a loose ruck of gauze, saturated with liquid paraffin, is laid in, and the wound edges are approximated by silk-worm gut sutures. In large wounds the space of at least two and a half centimetres is left open between the edges. Tension must be avoided. As a free flow of serum issues for the first few hours, a fairly copious but light dressing, preferably a Carrel pad, is applied. Unless adverse symptoms occur, the inner dressings should not be touched for three days, when they come away easily. The wound is again rinsed out with spirit or ether, and similar but reduced dressings of "B.I.P." and paraffin are placed as before. Either the central sutures, or one or two at each end of the long wound, may be tied closely after the second dressing, if all appears well. If the patient has not already been sent to the base, the dressings are renewed and further closure made about every three days.

At the time of writing a suitable chloramine paste has not been issued in this army, but from various American hospitals it is reported that it is bearing out the expectations formed of it at the "Mission Carrel."

The Carrel-Dakin treatment, if carried out at all, must be in its entirety as laid down by its authors. The dissection must be very thorough. Tubes of proper calibre, perforated strictly in proportion to that calibre, must be used. The reticulation of the tubes must be thoroughly made in relation to the ampoule or other means used for the supply of the Dakin's solution, which must be instilled into every corner of the wound at regular intervals of time not exceeding two hours.

The proper application of the Carrel pad is essential. Loose wool and gauze dressings are an abomination, and close bandaging is bad. Carried out as it is at Compiègne, the Carrel treatment gives the most beautiful results. It ensures an uniquely robust type of granulation, flat and deep red, resembling a raw beef-steak, and when this condition prevails throughout the wound, it can be closed, and heals at once with a minimum of cicatrization. The perfection of the technique at the Carrel Hospital needs to be seen to be appreciated. If one were able to retain all cases for a fortnight, I should choose no method of treatment but Carrel's. Its drawbacks as compared with the "B.I.P." method are some extravagance in dressings, the longer time required to carry out the first operation, and the necessity for continual supervision afterwards. It is by no means fool-proof, and anything but the most careful attention to detail will result in either inefficient irrigation, which means disaster, or over-flooding with consequent sloppy beds and dressings.



Ampoule with wire-holder and jar for nozzle when not in use. Pinch-cock hooked on to holder.

We use half-litre ampoules suspended to the wooden wall of the hut, 60 cm. above the bed, by a convenient holder (Fig. 1), which is quickly twisted from a single piece of copper wire. The nozzle is kept immersed in a small glass jar One ampoule serves two patients, each of whom has his own glass nozzle.

For the solution, Daufresne's recent formula is the best, *viz.*: to make 10 litres:—

Chloride of lime, 154 grammes.
Anhydrous carbonate of soda (Solvay), 77 grammes.
Bicarbonate of soda, 64 grammes

Five milligrammes of permanganate of potash is added to each litre. This gives a more stable product than that of earlier formulæ, and is absolutely non-irritating. Titration of the chloride of lime and of the Dakin's solution is made from time to time. We have not used flavine to any extent.

Whatever plan of treatment is followed, it is always advisable to immobilize extensively wounded limbs. Thomas's knee and arm splints are the most generally applicable.

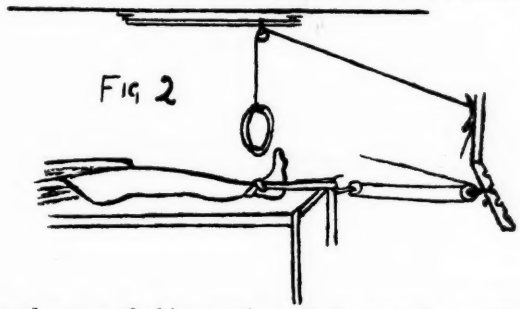
Compound Fractures of the Long Bones of the Lower Limb.

These are almost always treated upon a Thomas's knee splint. A shallow posterior gutter, cut from an oil drum and carried upon the usual slings of bandage flannel, is a good addition.

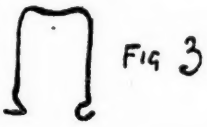
In the operating theatre each table is provided with a sling from an overhead beam for suspension of limbs, where necessary, and also a travelling pulley running upon a bar attached to the wall at the foot of the table for horizontal extension. (Fig. 2.)

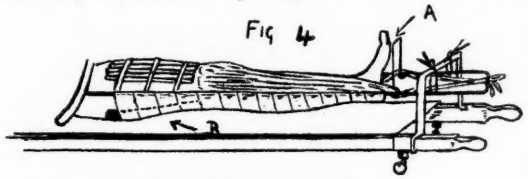
Very complete extension must be made to enable the thorough cleansing of the bony ends and removal of foreign bodies and soiled, detached fragments. The fracture should be exposed throughout its full length, except in the case of very long fissures. The medulla is curetted out from each fragment for about two and a half centimetres. Neighbouring vessels must be carefully inspected, as upon their condition will depend the possibility of saving the limb. The treatment then is that of any other in-

fected wound. When the wound has been dealt with, a permanent extension is applied. Sinclair's glue (glue 50, water 50, glycerine 2, calcium chloride 2, thymol 1) is painted over the most suitable, available



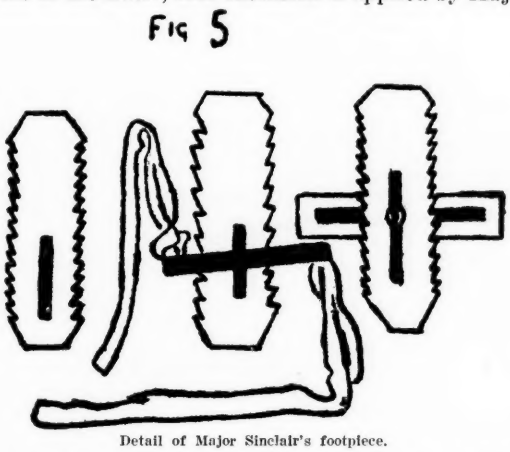
sound areas of skin, getting all the length possible, and scarves of four-ply roll gauze are laid on; if possible from near the mid-line in front to near the mid-line behind. The glue sets very quickly, and the ends of the scarves are passed, one under and one over the side bars of the Thomas's splint and tied over the end *V*. It is a good plan to suspend the foot by gauze glued to the sole, to the handy wire foot piece (Fig. 3), which is sprung on to the side bars of





Thomas outfit for transport.
A small board and pad fits between wire foot-prop (A) and sole of foot. (B) Malleable iron gutter padded and carried by flannel slings.

the Thomas's splint (Fig. 4). Where the fracture is close to the ankle, foot extension is applied by Major



Detail of Major Sinclair's footpiece.

Sinclair's method, his special serrated wooden foot piece being used (Fig. 5). The following is his description of the method:—

> Six strips of three-quarter inch flannel are cut. Each is threaded through two curtain rings bent into triangular shape. One set of six triangles is aligned along the inner margin, another set of six along the outer margin of the sole. Each strip is glued from near the mid-line of the dorsum of the foot down one side across the sole and up the other side of the foot to near the mid-line again. The ends must not meet over the dorsum. While the glue is drying, Thomas's splint is applied in the usual way and fitted with a support to keep the heel clear of the bed. The triangles are now threaded with tapes which are passed over the serrations of the foot-piece and tied. The foot-piece rides on the side bars of the "Thomas." The foot now being secured to the foot-piece is commanded absolutely and can be flexed, extended, inverted, everted, rotated in or out, lowered or raised. Extension can be applied to the whole limb by bands attached to the cross-bar of the foot-piece, and fixed to the *V* of the "Thomas." Having got length and alignment in the fractured limb, the cross-bar is fixed by tying to the side-bars with tapes. Care should be taken to thoroughly fix the knee in the splint by means of large cotton pads, and a bandage.

When a limb is put up in a Thomas's splint it is suspended at the foot to a most convenient suspension bar of flat iron, which was designed to spring on the poles of a stretcher (Fig. 4). It fortunately springs on equally well to an ordinary hospital bed. One of these now accompanies a patient from field ambulance to base.

Compound Fractures of the Upper Limb and Elbow Injuries.

Thomas's swivelled arm splint or an ordinary Thomas's splint bent about five centimetres below the ring to allow of adduction is the most generally useful. The abducted position is not convenient on hospital trains. For wrist and carpal injuries, Jones' cock-up splint is mostly used. Surgeons at the front and base alike bear witness to the immense contribution towards the mitigation of suffering and the limitation of disability made by Sir Robert Jones.

In France many of us have gained much by a visit to No. 8 Stationary Hospital at Boulogne, where that master of surgical mechanics, Major M. Sinclair, R.A.M.C., is ever ready to show the visiting surgeon his methods and ingenious appliances.

Head Injuries.

Head injuries are now all treated at the casualty clearing stations. Every case suspected of fracture is examined by X-rays. Antero-posterior, and lateral plates are taken. The stereoscope is particularly useful. In cases of compound cranial fracture, with or without a retained foreign body, the usual skin preparation having been made, a wide infiltration of the scalp surrounding the wound is made with a local anæsthetic. Colonel Gray's formula is:—

Novocain, 0.75.
Mag. sulph., 0.5.
Normal saline solution to 100.

Boil, and when cold add adrenalin 1 c.cm. to each 30 c.cm. Usually about 30 c.cm. are required for each operation. Gray's syringe is used. If the patient is lively, a preliminary injection of morphine or omnopon half an hour before operation is advisable.

In many cases no general anæsthetic is needed. A small quantity may be necessary for some patients.

A circular elastic ligature, passed over the brows and under the occiput generally obviates completely the use of hæmostats or ligatures for the scalp. The

soft tissues around the wound are cleanly excised down to the bone. We usually turn down a large flap to allow a free exploration of the bony injury, and free excision of any likely infected tissue upon its under surface. From this situation the operation is carried on under a stream of warm sterilized saline solution. By trephine or by Doyen's burrs and de Vilbis's forceps, only sufficient enlargement of the bony wound is made to allow of the removal of all in-driven fragments and the establishment of free pulsation. Large bone excisions are now condemned. We hardly ever open the *dura mater*, when it has escaped laceration. Colonel Sargent insists strongly upon this point.

Where there is laceration of the *dura mater* and pulping of the brain, as soon as sufficient decompression has been made, bony fragments, blood clot and pulped brain are freely "vomited" and not infrequently missiles of moderate size come to the surface. If a missile can be felt by the fore-finger, it can generally be removed by forceps passed along the guiding finger. Otherwise search is not made for it at this stage.

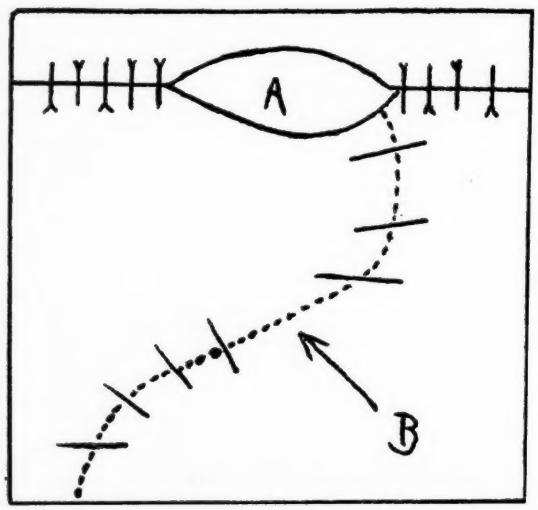
For a torn sinus, the "postage stamp" of fascia is invaluable. In four successive cases of severe sinus hæmorrhage, one at the *torcular herophili*, I found this simple expedient quite effective. The application of a fragment of muscle to any bleeding point is, of course, a very general practice, and recently a plug of muscle was successfully used at No. 13 Australian General Hospital to stop the bleeding from a lacerated vertebral artery in the neck.

The necessity of thorough exploration of every scalp wound has been many times impressed upon us. The most insignificant furrow in the outer table has often had beneath it extensive comminution and depression of the inner table. The large majority of wounds can be completely closed, a small fold of rubber tissue from the cerebral wound to a distant and dependent point in the scalp suture line affording sufficient drainage. If there has been great pulping of brain, and much apparent infection, a small cylindrical drain of mosquito net impregnated with hard paraffin, or Sargent's perforated zinc drains, may be necessary. The paraffined mosquito-net also makes a good retentive dressing for *fungus cerebri*; it may be tucked beneath the scalp and tacked there. I have mentioned that at the No. 2 Australian General Hospital we usually turn down a large scalp flap. Colonel Gray, however, works through the enlarged original wound and, in concluding his operation, closes it, as far as possible and then glides up a plastic flap as shown in his diagram (Fig. 6). By extensive undermining of the scalp he is able to close any gap. If there be much tension the scalp is scarified between the suture lines, sufficiently to draw blood.

Penetrating Wounds of the Chest.

I am almost inclined to omit any note upon this subject, which at the time of writing is still in the melting pot. The pendulum has swung during the past twelve months from no interference at the casualty clearing station to the most radical surgery, involving long excision of several ribs with free withdrawal of the lung, removal of the foreign body and infected lung tissue, and suture. The pendulum is swinging back to a position midway between the two extremes. In our sector no heroic measures have been tried. The procedure with us is to place the patient in the sitting position and give morphine 0.01 gm., to block at once any wound through which the air is

Fig 6



Colonel Gray's plastic operation for loss of scalp tissue. (A) Original wound. (B) Incision for plastic flap and indication of final sutures.

sucked, to excise and suture the parietal wound as soon as the condition permits, to aspirate a hæmothorax upon the second or third day, and to obtain a bacteriological report. If the report is positive, a rib is excised and instillations of Dakin's solution made, or flavine, with drainage is used. If the first report is negative, fresh specimens of fluid are examined every two days. A large foreign body, shown by skiagram to be accessible, should be removed. How early this should be done, will be proved with more experience. On aspirating a hæmothorax I have always made it a rule to inject into the pleura 60 to 90 c.cm. of Dakin's solution, and have several cards from the base which report straw-coloured sterile fluid from the patients who had hæmothorax infected with *bacillus aerogenes* or streptococcus, or both at the first aspiration. But the plan does not always succeed. I have always aspirated as much fluid as will run off by simple siphonage at one sitting without distress. The amount has reached as much as 1.8 litres, and we have not had a single case of secondary hæmorrhage following aspiration.

Penetrating Wounds of the Abdomen.

Expectant treatment is only followed in cases where a considerable time has elapsed since the injury, where the missile is probably a bullet and has apparently not wounded a viscus, save the liver or kidneys, and the patient is doing well. In all other cases only a small margin of time is allowed for resuscitation. Warm ether is the ideal anæsthetic, but in greatly shocked cases gas and oxygen have given a quite

satisfactory anæsthesia for as long as an hour and twenty minutes. Subcutaneous injection of normal saline solution beneath the pectorals is begun as soon as the patient is anæsthetized, while the skin preparation is being done. If there are fractures or other wounds a second surgeon attends to these. The entry wound is excised at once. To attend to other wounds after the conclusion of laparotomy leads to a marked fall of blood pressure. A very long paracentral incision is the rule; but with a wound over the spleen or splenic flexure, an oblique muscle-splitting incision continued downwards from the wound, is a good one. In thoraco-abdominal wounds the rent in the diaphragm is sought and sutured at once.

A quiet but deliberate search for wounds must be made throughout the whole length of intestine and stomach. Only moderate lengths of bowels should be withdrawn at one time. Wounds as found are clamped and wiped and the length of bowel returned, if possible, into the abdomen until the exploration is complete. A complete evacuation of blood and blood clot is made. Transverse suture of a number of intestinal wounds is borne better than resection. Lateral and end-to-end anastomoses have done equally well. The latter is the more often practised. Irrigation of the peritoneal cavity is very rarely done in any of the casualty clearing stations, but badly soiled areas are freely washed with Dakin's solution or normal saline solution. It is of the utmost importance to evacuate any retro-peritoneal hæmatoma which is the most favourable nidus for anaerobic infection. Sometimes such a hæmatoma may be best evacuated and drained through a long extra-peritoneal incision in the loin, the region being treated by Carrel's method or with "B.I.P." paste.

Drainage of the peritoneal cavity is almost always necessary, and a rubber-dam rolled loosely and transfixed with a stitch at its exit through the parietes but spread out fan-wise in the area to be drained, is very satisfactory. A wound penetrating the abdomen through the buttock is the surgeon's *bête noir* and may present almost insuperable difficulties. Buttock wounds, *per se*, are of extreme gravity, involving as they so often do, a smash of the pelvic bones, a stripping up and infection of its muscular layers and damage to bladder and bowel. By the freest incision the full depth of the buttock must be laid open, vessels and nerves being avoided, if possible. It is often advantageous to turn back and tack back with silk-worm gut large gluteal flaps which are kept open for several days. They heal with remarkable rapidity when the sepsis has been beaten.

The smashed ala of the iliac bone resists infection badly, and in it there quickly developes a stinking infective necrosis which necessitates free removal. This is best effected by drilling in healthy bone one centimetre beyond the necrosis, and cutting out the infected area with drill and de Vilbis's forceps. Nibbling with Rongeur forceps only spreads the infection.

The following table shows the lesions encountered in our last 200 penetrating abdominal wounds and the numbers of patients who have been evacuated to the base. No patients have been evacuated who were not doing well at the end of the week. Many have had in addition to the abdominal injury multiple wounds of trunk and limbs, and in thirteen the thorax has been involved. Our rule was to operate upon every patient who was not obviously moribund.

Penetrating Abdominal Wounds.

	Cases Operated.	Died.	Recovered for Evacuation to Base.
Penetrating Peritoneum without visceral injury	23	4	19
Wounds of solid Viscera—			
Liver only	26	10	16
Spleen only	4	3	1
Kidney only	3	0	3
Liver and Spleen	1	1	0
Liver and Kidney	5	2	3
Spleen and Kidney	1	1	0
Wounds of Hollow Viscera—			
Stomach	6	3	3
Stomach and Bowel	4	2	2
Large Intestine	29	16	13
Small Intestine	57	35	22
Large and Small Intestine	13	8	5
Bladder only	9	5	4
Bladder and Intestine	8	7	1
Solid and Hollow Viscera—			
Liver and Hollow Viscus	6	3	3
Spleen and Hollow Viscus	5	5	0
	200	105	95
Percentage Evacuated			47.5

Wounds Involving the Knee Joint.

The knee-joint has made its reputation during the present war, and particularly during the present year. Almost all cases are operated at the casualty clearing station. Only those with small entry not freely communicating with the surface injury and without obvious signs of sepsis are sent down to the base, unoperated, even in times of stress. No operation may be attempted for the removal of a foreign body from the knee-joint without careful X-ray localization. The strictest asepsis is aimed at.

All surrounding infective tissue having been dissected off, if possible *en masse*, soiled instruments are discarded and the margins of the wound in the capsule are excised with a sharp scalpel. The joint is opened sufficiently to enable one to see the foreign body. Lateral dislocation of the patella, removal of one half of this bone or division of the patella ligament may be necessary. If the missile is embedded in bone, the latter is freely gouged away and the resulting hole is filled with "B.I.P." paste or a plug of fat. The synovial cavity is irrigated for at least five minutes with Dakin's solution or normal saline solution. We do not, as a rule, use any irritant, such as formalin-glycerin. The capsular wound is closed with fine catgut, plastic measures being taken if required. In bad smashes with marked soiling Carrel's treatment is substituted for closure. The limb is immobilized upon a Thomas's splint with careful padding of the popliteal space. When there is damage to the popliteal vessels or nerves, amputation

may be called for, in which case it is done through the joint for choice. Primary resection of the knee-joint must be very rarely advisable at a casualty clearing station. The orthopædists in England are strongly against its being done at this early stage. Since writing these notes, I have had an opportunity upon a hospital transport of examining a number of knee-joints which were operated on at casualty clearing stations. The ultimate functional results are quite excellent.

Out of the 16,357 patients received, of all injuries, only 50 had to submit to amputation of feet, 33 of the lower limb and 41 of the upper limb. Sixty per cent. of the amputations were for anatomical injury, and 40% were on account of sepsis.

Tuffier gave figures early in the war showing that 75% of amputations at that time were rendered necessary by sepsis.

In conclusion I should like to note the excellence of the anæsthesia as now provided at the front, and the patience and skill of our anæsthetists. In spite of the appallingly shocked condition of the vast number of patients, deaths during or shortly after operation were of extreme rarity.

Warm ether given by the Shipway apparatus or, as preferred at No. 2 Australian Casualty Clearing Station, by a simple and inexpensive one made by Private McMurdie from two pickle bottles, and an "issue" hot water tin, avoided post-anæsthetic vomiting to a great extent, and did not aggravate the bronchitis from which so many wounded were suffering on admission. Nitrous oxide and ether given through Hewitt's apparatus, however, has been a revelation in shocked and toxæmic cases. After a little practice our anæsthetists have kept the patients anæsthetized and yet of a good colour for any necessary period. They have been conscious immediately after operation, and generally expressed their own condition as *très bon*, emphasizing their returning sense of well-being by the request for a "fag."

Reviews.

ANAPHYLAXIS.

The term anaphylaxis has been so frequently misused since Richet first applied it to signify the state of increased sensibility to a definite organized substance, that any author now treating the subject is well advised if he defines the condition and if he endeavours to avoid the inclusion of other conditions which do not fall within his definition. In his excellent account of the experimental work on anaphylaxis and anti-anaphylaxis, Professor Besredka has kept before him a clear conception of what he understands the condition to be and refuses to be confused by the anomalous results met with in poisonings presenting some similarity to anaphylaxis.[1] It is probable that the reason why there is no unanimity of opinion concerning the nature of the phenomenon is to be sought in the fact that the signs of anaphylaxis are so little characteristic that a slight variation in technique may give rise to a response wholly divorced from true anaphylaxis. In its essence the phenomenon is produced by the injection of a very small quantity of a protein into a guinea-pig or other animal, and after the lapse of not less than ten days, by the injection of a large dose of the same protein. The animal dies acutely after the second or intoxicating dose, although the same dose given to the normal animal has no harmful effect. In his account of the experiments which have been undertaken to determine the mechanism of the phenomenon, Professor Besredka shows how the sensitizing may be effected readily by the subcutaneous injection of small doses of serum, milk or white of egg, while the intoxicating effect is best produced by an intracranial injection or by an intravenous one. Intraperitoneal injections act less promptly and with less certainty, while subcutaneous injections are still less reliable. In the next place he reviews the evidence collected in regard to what is known as passive anaphylaxis. His own view of the effect of the sensitizing dose is that a reaction product, which he terms *sensibilisine*, is called into being. Other observers have also adduced evidence that an antibody is formed by the organism as a result of the first injection. Consequently the condition of hypersensibility can be transferred from an anaphylactic animal to a normal one by the injection of the already formed antibody. While there is general agreement up to this point, divergence of opinion appears in the interpretation of what happens when a second dose of the protein is injected. Professor Besredka does not allot much space to the alleged anaphylaxis to non-protein substances, because of the extreme uncertainty of the basal facts. It is scarcely surprising that the nature of the reaction is so little understood, since in almost every case the investigators have utilized in their experiments highly complex mixtures, such as serum, milk and white of egg. Only a few have sought to simplify the phenomenon by employing the simplest protein, namely, crystalline egg albumin. According to Professor Besredka, the *sensibilisine* in the hypersensitive animal combines with explosive suddenness with the antigen at the time of the second injection, and the suddenness of this reaction causes a mechanical effect on the animal. He holds that the *sensibilisine* is anchored to the brain cells and consequently the effect is more disastrous than if it were anchored elsewhere in the body. He likens the reaction to the sudden pouring of water into pure sulphuric acid. In a similar manner he explains the phenomenon of anti-anaphylaxis by assuming that when the second dose is small and insufficient to produce a violent reaction, the neutralization of the *sensibilisine* takes place gradually and insensibly. In his opinion the anti-anaphylactic animal is one which has been restored to its former natural condition. Richet holds a different view, and the author is at pains to reveal the defects attaching to this view and that of Friedberger. According to Richet, the antibody and the antigen combine in the body to form a substance, which he terms *apotoxine*, an entirely new chemical substance. Friedberger interprets the observed facts by assuming that the antibody is a precipitine and the antigen a precipitogene. He further assumes that complement is needed to form a toxic product, which he calls anaphylotoxine. Doerr and Russ, on the other hand, believe that the phenomenon is due to the actual precipitation of protein within the body of the intoxicated animal. The author adduces evidence which he interprets as proving that neither antibody, antigen nor complement are essential factors in the alleged anaphylotoxine. His arguments are highly ingenuous and his summaries of the views of observers with whom he does not agree, are eminently fair and well given. Those who have not followed the mountain of literature on this subject which has grown up during the past ten years, will find this book instructive and an excellent guide. We would, however, recommend the student of this important bio-chemical phenomenon to read what other workers have to say on the same subject, after he has permitted Professor Besredka to fascinate him with his views and his skilful presentation of the subject.

[1] Anaphylaxie et Anti-anaphylaxie, Bases expérimentales, by A. Besredka, Professor at the Institut Pasteur; with a Preface by E. Roux, Director of the Institut Pasteur; 1917. Paris: Masson & Cie. 8vo., pp. 145. Price, 4 fr.

MEDALS OF THE ROYAL SOCIETY.

Dr. E. Roux, the Director of *l'Institute Pasteur*, of Paris, has been awarded the Copley Medal of the Royal Society of London in recognition of his valuable services in bacteriology, and especially in serum therapeutics. The Buchanan Medal of the same Society has been awarded to Sir Almroth White in recognition of his scientific work in connexion with preventive medicine. The Hughes Medal of the Royal Society has been awarded to Professor C. G. Barkla for his researches in X-ray radiation.

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Food Rations.

The announcement last week of Lord Rhondda, the Food Controller, that he has nearly completed a scheme of compulsory rationing, which would be put into effect after the sanction of the Cabinet had been obtained, indicates that the community has not kept within the limits of the rations prescribed on a voluntary basis in November, 1917. Great Britain has been compelled to abandon her usual so-called practical method of meeting an economic difficulty and has sought the aid of physiologists in determining how her people can secure sufficient food to enable them to cover the loss of energy caused by work with a limited supply of food stuffs. The voluntary food rations prescribed in November have been planned on a basis that a man doing heavy industrial work requires 4,000 calories, and a woman doing the same requires 2,800 calories; that a man doing ordinary industrial work requires 3,500 calories and a woman 2,400 calories, and that a man doing sedentary work requires 2,500 and a woman 2,000 calories. It has been considered inadvisable to prescribe a fixed ration for children, since their requirements vary within wide limits and underfeeding in childhood may lead to disastrous effects which cannot be made good at a later date. The diet to which the people were asked to confine themselves, was divided into two parts. The larger part, varying in the six classes from 56.6% to 75% of the total requirements, formed the ration. The daily amount of bread allotted to the individual varied from 518 grammes for a man doing heavy work to 227 grammes for a woman doing light work. The equivalent in calories is 1,344 and 588 respectively. Oatmeal, rice, tapioca, sago, barley, corn-flour, maize, dried peas, beans, lentils and other cereals except bread and flour, were grouped together under one heading of "other cereals." This group as well as meat, the butter, margarine, lard, oils and fat group and sugar were allowed to uniform quantity for all six classes. The amount of other cereals allowed daily was 48.5 grammes, of meat 130 grammes, of butter, etc., 40.5 grammes and of sugar 32.4 grammes. These foods provided 923 calories. The unfortunate part of the rationing is that, while the people were asked not to consume more than these amounts of the specified foods, some of the articles were difficult to procure and it was doubtful whether, even if everyone had behaved loyally and well, there was at the time sufficient to go round. It must be assumed that the Food Controller planned the rationed diet on an estimate of food that was available or "in sight." The suggestion was made that the diet should be supplemented by potatoes, of which an ample crop was available, fresh vegetables, fruit, milk, cheese and fish. The man on heavy work needed no less than 1,700 calories in addition to his rationed foods. Potatoes and onions could be utilized for the greater part of the deficiency, but cheese and milk were both scarce, and the Food Controller demanded that their use should be restricted. In November eggs were almost unprocurable, and consequently could not play an important part in the unrationed food supply.

The problems can, we venture to think, be attacked to greater advantage if the community were given more guidance concerning the food value of all kinds of food stuffs. If a compulsory ration is to be introduced, a minimum should be set up and means should be adopted to insure that the ingredients of the fixed ration are actually obtainable. The ration should have a caloric equivalent measured according to the work to be performed. The scale given above may be accepted as sufficient, but the principle of leaving the individual to find from one quarter to one half of the food he or she needs, is a dangerous one. When it is necessary to impose a strict limit on the consumption of food by the community, it is essential for the authority to publish, with the assistance of physiologists, sample diets which yield on combustion a sufficient amount of heat-energy to make good the loss sustained in work. Diet tables, worked out with consideration for the amount of each group that is available, would enable the individual to regulate his diet without harm to his neighbour.

Up to the present we, in Australia, have not felt anything of food shortage. There is, on the contrary, a tendency on the part of many people to eat more than is either necessary or good for them. If ships be available we can afford to send to England not only the wheat she has already paid for, but also a considerable quantity of the surplus of other foods. But even in the absence of means of transport, it would be salutary if we were to measure the caloric value of the food we consume and adjust the quantity to our actual requirements. Over indulgence is as bad for bodies as it is for minds.

THE WORKING MEDICAL REGISTER IN NEW ZEALAND.

Notwithstanding the apparent incapability of more than half the population to recognize that Australia's honour will be irretrievably lost if she does not continue to support the Empire to her utmost capabilities in waging the war to a successful issue, we hold tenaciously to the belief that we still have the duty of organizing the medical profession, so that every member may be used in the best interests of the British Empire. Experience has shown that haphazard methods and leaving it to those who are prepared to sacrifice personal comfort, rich emoluments and safety, fail to satisfy war needs. It is necessary, if the full value of the medical profession is to be available, for a system of mobilization to be introduced. This system should be based on the actual military requirements and on the population of districts. In New Zealand a "Working Medical Register" has been set up for this purpose. The Dominion has been divided into 39 "Hospital Districts," having a population varying between 164,105 and 2,803. The number of medical officers from each district employed on military work in New Zealand and overseas is given and the number of medical practitioners in civil practice. In the last place the number of individuals in the community to each doctor in civil practice in the several districts is given. It appears that the total population of New Zealand is 1,136,536, including 49,959 Maoris. There are 47 medical officers on military duty in the Dominion and 179 serving overseas. The number of practitioners in civil practice is 501, and the average number of persons in the population to each doctor is 2,269. While the maximum and the minimum numbers are considerably removed from the average or mean, there are only nine districts out of 39 in which each doctor corresponds to 3,000 persons in the community or more. In one district with three medical practitioners the population does not quite reach 1,000 per doctor. In five districts there are between 1,000 and 2,000 persons to each doctor; in twenty districts there are between 2,000 and 3,000 persons to each doctor, and in eight there are between 3,000 and 4,000 persons to each doctor. In the remaining five districts the population to each medical practitioner number 4,121, 4,652, 5,027, 5,309 and 7,369.

In December, 1916, the Central Medical War Committee in Great Britain suggested to the Government that some representative medical body should be endowed with power to transfer medical practitioners from one district to another for civil purposes, so that the release of more medical men for military purposes would be easier. The Government has not yet given effect to this recommendation, and the adjustment of medical practices in districts from which medical men are taken for military service, still rests on a voluntary arrangement. In New Zealand the proposal made by the Branch of the British Medical Association was that the redistribution should be carried out by a body representative of the medical profession. Objections were taken to the suggestion that the arrangements should be left to the Department of Public Health. On the other hand, the doctors agreed that the Department should have some voice on the Committee, since they asked the Government to guarantee the income of the medical practitioners moved by its direction. When Australia will have arrived at this stage and the services of the medical profession will have been utilized properly, it will be necessary to stipulate that the body endowed with power to send civil practitioners to fresh districts within the Commonwealth, shall be a representative medical committee, acting either in collaboration with or under the direct control of the military authority.

SOME VALUABLE SUGGESTIONS.

Lieutenant-Colonel J. S. Purdy, D.S.O., has made the following suggestions, all of which are of sufficient importance to justify a full discussion of their merits in these pages. We therefore invite our readers to express their views on the several questions raised. The two aspects which present themselves for consideration are desirability and practicability. As a rule, if a thing is desirable, ways and means can be found to carry it into effect.

The suggestions are as follows:—

(*i.*) That the Universities should give a free curriculum to the sons and daughters of medical and other officers who have fallen in the war or who have died in the service overseas.

(*ii.*) That all State-aided schools or schools that receive endowments from public or private benefactions, should grant the privilege of half fees to sons and daughters of men who are serving or who have served overseas for a period of at least two years.

(*iii.*) That members of the Army Medical Corps, Australian Imperial Force, registered in one State, should be registerable in any other Australian State on their return, without fee.

(*iv.*) That the rules of the British Medical Association be held in abeyance for men serving overseas.

We presume that the last suggestion is intended to mean that the privileges of membership of the British Medical Association shall be continued during the period of absence of members on active service overseas, and that no subscriptions shall be charged. To this we would wish to add that the British Medical Association has made no provision of this kind, and consequently if an Australian Branch desired to retain the membership of members serving with the forces, financial arrangements would have to be made by that Branch with the Council of the British Medical Association in London, and that similar arrangements would have to made with the Directors of the Australasian Medical Publishing Company, Limited. At a later date, the present arrangements of each Branch in Australia in regard to its members serving overseas, will be set out in these columns.

FRESH WATER SNAILS OF VICTORIA.

The history of the investigations into the ætiology of malaria taught biologists that the study of the intermediate host is essential before information of value can be gained. It is not the most prevalent mosquito that is of importance, but one that may be numerically but weakly established in a district. In this connexion it is a strange fact that hitherto it has not been ascertained which variety of anopheles acts as the vector of the plasmodium of malaria in Australia, or indeed if the anophiline mosquito is responsible for the spread of the disease. This lesson may be transferred to the disease known as bilharziosis. As is well known, bilharziosis is common in Egypt. It is caused by a trematode, the *Bilharzia hæmatobia*, which in its embryonic stage enters a fresh water snail. In the snail it developes into a sporocyst and from this *cercariæ* are discharged into the water. The larvæ swim in the water, and if they can find a human being within forty-eight hours, they enter the body either through the skin or even by the mouth. Once in the bladder or liver they complete their life cycle. The knowledge of this disease and of the life cycle of the bilharzia, or liver fluke, has been gained in Egypt by Leiper. This investigator discovered that young specimens of one of the Egyptian *Bullinus* could be induced to take up the fluke. In order to gain some information concerning the danger of spread of the disease in the Commonwealth from infected soldiers returning from Egypt, it is necessary to have a complete inventory of the fresh water mulluses found in Australian waters. In the next place a systematic search must be made for infected snails, and thirdly careful experiments must be carried out to ascertain which snails are capable of harbouring the embryo of the *Bilharzia hæmatobia* and of enabling it to undergo the first stage of its life cycle within its tissues. A few experiments were conducted by Major Thomas Cherry in the autumn of last year but with entirely negative results. Major Cherry, however, does not appear to have been well guided in regard to the identity of the snails, and consequently his investigations were not as useful as they would have been, had they been preceded by a well planned tabulation of the Australian *Bullinus*. It is a matter for congratulation that the highest authority on conchology in Australia, Mr. Charles Hedley, the Assistant Curator of the Australian Museum, has already published some notes on the Victorian species of *Bullinus*. We invite those who are interested in the prophylaxis of disease, to seek opportunities for taking specimens of fresh water snails and to send them to Mr. Hedley, who will then be able to ascertain which species exist throughout the Commonwealth and thus give the biologists a complete inventory of the possible intermediate hosts of the bilharzia.

Mr. Hedley refers to two previous publications on Australian fresh water shells; one by Tate and Brazier and one by E. A. Smith. From these two records it would appear that the knowledge of the *Physa*, as the snails were then called, was highly unsatisfactory. Cooke adduced evidence that they should be classed in the family *Planorbidæ* and the generic name of *Bullinus*, suggested by Adanson, was ultimately discarded as unsuitable. *Bullinus tenuistriatus*, Sowerby, has been found at Overland Corner, while the variety *texturatus* has been found in the Wimmera River, the variety *puncturatus* in the Murray swamps, the variety *waterhousei* in the Murray River and the variety *confluens* at Echuca. *Bullinus acutispira* has been found both at Horsham and near Portland, but there appears to be some

doubt as to the variety in these two specimens. *Physa kershawi* has been found in the Upper Yarra, while *Bullinus aliciæ* (*Amplexa turrita*) has been found in Balaarat. There appears to be some doubt whether *Bullinus pectorosus*, Conrad, has actually been found in Victoria, although Mr. Hedley ventured on the identification. He now considers the specimen to be a *Bullinus tenuistriatus*, var. *arachnoideus*. The *Isodora* are represented by two types. *Physa hirsuta* (*Isodora hænesii*) is said to have been found at Caulfield, while *Isodora newcombi* abound at Bacchus Marsh, Stawell and Mount Hope. It will thus be seen that the untrained observer is likely to be led astray if he endeavours to study bilharziosis without applying to the conchologists for expert assistance.

BACILLUS PERFRINGENS TOXIN.

In view of the damaging effects of the infection of wounds with *Bacillus perfringens*, sometimes known as *Bacillus welchii*, and of the fatal results ensuing when these infections gain the ascendency, many attempts have been made to investigate the method of action of these bacilli. It has long been known that butyric acid and other acids are formed in anaerobic cultures of this bacillus. McCampbell, Stewart and West, and A. E. Wright have ascribed an important rôle to the acids and have even gone as far as attributing the toxic action to the acid. Against this view many of the earlier workers demonstrated that gas bacillus infections were associated with intoxications. A hæmolytic toxin was isolated by Kamen in 1904. It has subsequently been ascertained that the toxin is thermostable. Carroll G. Bull and Ida W. Pritchett have prepared the toxin with great care and have shown that it is a true toxin, analogous to diphtheria toxin. They were able to immunize animals with this toxin and obtained a potent antitoxin. In continuing their investigation[1] they have established the fact that toxin derived from widely different strains from *Bacillus perfringens* gave rise to lesions indisguishable from one another, and that the only ascertainable difference between the various samples of toxin from these strains was one of potency. All the toxins were neutralized by antitoxin produced by means of one strain. This find should be of considerable practical value. They have further shown that in the artificial production of toxin the addition of muscle to the medium effects a five-fold increase in potency. The muscle must be fresh, and after autoclaving it is without action. In the next place, the addition of from 0.2 to 1% of glucose to the broth exercises a marked effect on the toxin production. Under ordinary conditions the toxicity of the filtrate of broth cultures is inversely proportionate to the length of time of incubation. The maximum toxin content is found at the end of the first day. When 0.5% of glucose and fresh muscle are added to the broth, there is practically no decrease of toxin for six days or even longer. Greater concentrations of glucose than 1% yield less toxic potency. In the next place they have shown that there is no parallelism between the acidity and the toxin production. In some instances, while there was a decrease of 1% in the acidity, the toxin lost approximately 96% of its potency. This finally disposes of the suggestion that the effects of gas producing bacilli are referrable to the acid formed.

[1] *The Journal of Experimental Medicine*, December, 1917.

Naval and Military.

CASUALTIES.

The 377th list of casualties was issued on January 7, 1918. From it we learn that Captain Renfrey Gershom Burnard has wounded (gas). He was previously reported to have been ill. Captain Thomas Edward Marshall and Captain George Norman Roberts are both reported to be ill, with the word "seriously" attached.

From another source we learn that Captain Henry Dolman has been wounded.

We have been informed that Major W. W. S. Johnston, D.S.O., M.C., A.A.M.C., attached 12th Battalion, received multiple shell wounds on the right side, on September 29, 1917. He was still unfit for duty in November. From the same source we learn that Captain Ernest Leslie Morgan was wounded in the left wrist on October 19, 1917. He was still in hospital a month later.

HONOURS.

Among the recipients of New Year honours there are many members of the Army Medical Corps.

Lieutenant-Colonel (temporary Colonel) A. Sutton has been created a Companion of the Bath.

The following have been created Companions of Saint Michael and Saint George:—

Lieutenant-Colonel (temporary Colonel) G. W. Barber, D.S.O.
Lieutenant-Colonel (temporary Colonel) R. M. Downes.
Lieutenant-Colonel J. Gordon.
Lieutenant-Colonel D. McWhae.
Lieutenant-Colonel K. Smith.
Lieutenant-Colonel A. T. White, V.D., A.D.M.S.

The following have been awarded the Distinguished Service Order:—

Lieutenant-Colonel J. J. Black.
Lieutenant-Colonel M. H. Downey.
Lieuenant-Colonel A. H. Moseley.
Lieutenant-Colonel H. S. Newland.
Lieutenant-Colonel A. H. Thwaites.
Lieutenant-Colonel C. E. Wassall.
Major A. S. D. Barton.
Major D. D. Cade.
Major C. L. Chapman.
Major J. Hardie.
Major R. S. McGregor.
Major J. J. Power.
Major C. J. Tozer.
Major H. J. Williams.

The following have been awarded the Military Cross:—

Major W. Evans.
Major R. H. Hudson.
Major L. May.
Major E. K. Parry.
Captain W. McK. Doig.
Captain R. L. Forsyth.
Captain H. F. Maudsley.
Captain J. F. Murray.
Captain C. C. Simson.
Captain R. Webster.
Captain R. P. Wheeler.

Reference should also be made to the fact that Major T. W. E. David, Professor of Geology at the University of Sydney, has been awarded the Distinguished Service Order.

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending December 22, 1917:—

	Metropolitan Combined District. Cs.	Dths.	Hunter River Combined District. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Enteric Fever	7	1	3	0	7	0	17	1
Scarlatina	19	0	1	0	6	0	26	0
Diphtheria	79	1	3	1	23	0	105	2
*Pul. Tuberculosis	15	4	2	2	0	0	17	6

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

One case of variola has been notified from Warren.

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending December 23, 1917:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Diphtheria	16	2	13	0	29	2
Enteric Fever	1	0	9	0	10	0
Scarlatina	9	0	12	0	21	0
Pul. Tuberculosis	6	6	12	4	18	10
C'bro-Spinal Meningitis	2	—	0	—	2	—
Poliomyelitis	3	—	0	—	3	—

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, during the fortnight ending December 15, 1917:—

	Adelaide. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Diphtheria	6	0	29	4	35	4
Pulmonary Tuberculosis	2	4	11	8	13	12
Scarlatina	1	0	6	0	7	0
Enteric Fever	0	0	5	0	5	0
Pertussis	0	0	5	0	5	0
Morbilli	0	0	1	0	1	0
Erysipelas	0	0	2	0	2	0
Puerperal Fever	0	0	3	1	3	1
Favus	0	0	3	0	3	0

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the fortnight ending December 29, 1917: —

Disease.	No. of Cases.
Diphtheria	51
Enteric Fever	30
Pulmonary Tuberculosis	13
Scarlatina	15
Erysipelas	6
Malaria	2
Ankylostomiasis	1
Cerebro-spinal Meningitis	1
Bilharziosis	1

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending December 15, 1917:—

	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Enteric Fever	4	0	4
Diphtheria	4	5	9
Scarlatina	1	0	1
Pulmonary Tuberculosis	3	4	7
Septicæmia	1	1	2
Malaria	3	0	3
Bilharziosis	1	0	1
Ophthalmia neonatorum	1	0	1

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the week ending December 22, 1917:—

Disease.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Enteric Fever	2	1	3	6
Pulmonary Tuberculosis	1	0	2	3
Diphtheria	0	2	10	12
Scarlatina	0	0	1	1
Poliomyelitis	0	0	1	1

THE MEDICAL DEFENCE SOCIETY OF QUEENSLAND.

The annual meeting of the Medical Defence Society of Queensland was held in the B.M.A. Rooms, Adelaide Street, Brisbane, on December 13, 1917.

The report of the Council was read and adopted.

It was stated that during the year a country member had appealed to the Society for advice and support in connexion with a magisterial enquiry into the death of a man from injuries received at an accident. The practitioner was called to the scene of the accident by telephone and advised his removal to the local hospital where he would attend him. The doctor was subsequently informed by telephone that his attendance at the hospital was not required. At the enquiry, notwithstanding the fact that the practitioner was not called as a witness, the Magistrate added a rider to the finding, to the effect that from the evidence adduced, he was of opinion that the conduct displayed by Dr. ——— in not going to the aid of the deceased when required by the police, was deserving of censure. The Society made representations to the Department of Justice, and as a result, the enquiry was re-opened by a Brisbane Police Magistrate, who exonerated the medical practitioner.

Twenty-five new members were elected during the year. The total number of members was thus brought up to 140.

The financial statement showed that £450 had been invested in the War Loan, and £100 in the Queensland Medical Land Investment Company, Limited. There stood to the credit of the Society in the Government Savings Bank £120 15s. 8d. and £99 17s. 9d. at current account in the Bank of Queensland.

THE QUEENSLAND MEDICAL LAND INVESTMENT COMPANY, LIMITED.

The annual meeting of the Queensland Medical Land Investment Company, Limited, was held in the B.M.A. Rooms, Adelaide Street, Brisbane, on December 13, 1917.

The Managing Director stated that the year had been an uneventful one as regards the working of the Company, everything running smoothly.

On December 14, 1916, a dividend of 5%, free of income tax, had been paid on the amount paid on the shares, and it was resolved to pay the same dividend on December 14, 1917.

He reported that £50 had been paid off the mortgage from the Diocesan Synod during the year, and it was resolved to pay off a further £100 on December 31, thus reducing the amount of the loan by £600 since the building was occupied in 1913.

Taxation had increased considerably since the Company was incorporated. The amount payable in taxation this year was £117 10s. 6d.

THE LAUNCESTON GENERAL HOSPITAL.

A meeting of the Board of Management of the Launceston General Hospital was held on December 20, 1917. Among other things the Board considered a letter from Dr. Allan Pryde, the House Surgeon, tendering his resignation. It appears that in July Dr. Pryde gave notice of his desire to resign. The Board had made various attempts to obtain a successor. The vacancy had been advertised, and an application had been received, but had subsequently been withdrawn. The Board determined that it was compelled to accept Dr. Pryde's resignation. The Chairman stated that unless some assistance be obtained, it would be impossible to carry on the work of the Hospital.

We learn that the Out-Patient Department has now been closed and that the admission of patients to the wards has been limited to cases of urgent illness or accident.

Abstracts from Current Medical Literature.

DERMATOLOGY.

(11) Multiple Benign Tumours.

William Allen Pusey records a case of multiple benign tumour, like new growths, which bears a striking resemblance to the one described by Schweninger and Buzzi (*Journ. Cutaneous Dis.*, September, 1917). He states that a case of this type has been reported by Stelwagon, whilst Crocker asserts that similar cases have been observed by Malcolm, Morris, Colcott Fox, Van Hoorn, as well as by himself. The patient was a man *aet.* 37, and the lesions were situated on the face, the upper half of the arms, the back, and the buttocks. They were characterized by small, almost flat, scar-like spots, and oval swellings, varying in size from that of a pinhead to that of a hazel nut. There were accompanying these some senile ectases and a few pigmented moles. The growths on the face were symmetrical, and affected the forehead, upper lip, as well as the chin, which was especially involved, and was the first situation to be affected; the growth was noticed when the patient was 22 years of age. The larger nodules on the chin were raised, oval, or hemispherical tumours. They were as soft as, or soften than, the normal skin, and were completely reduced by light pressure or by stretching. Their colour was for the most part that of the normal skin, but occasionally they showed a faint slate or reddish tinge, whilst dilated vessels were visible over the larger nodules. Here, as in other regions, the growths slowly increased in number, and attained their maximum size in a few months. They then remained stationary, but at no time did they exhibit any subjective symptoms. The lesions on the back presented themselves three years later than those on the chin. They appeared as oval or linear patches, very slightly raised above the level of the surrounding skin, and were either in the form of thin cigarette paper-like scars or slightly raised blisters. Some of the lesions were of a light yellowish brown colour. The lesions on the extensor surfaces of the upper half of the arms bore a close clinical resemblance to those on the back, whilst the buttocks exhibited large and numerous lesions. One of the smaller nodules on the back was excised, stained with hæmatoxylin and eosin, polychrome, methylene blue and orcein, and Weigert's stain. The *stratum corneum*, transitional layers and basal cell layer were unaltered, whilst the *rete malpighii* appeared to be somewhat thinner in the affected part. The corium was the part most involved, and its appearance corresponded almost exactly to the description given by Schweninger and Buzzi. There was a marked loss of elastic tissue mainly in the papillary and subpapillary layers, together with an infiltration of small round cells about the blood vessels of the superficial layer of the cutis. The author states that the skin was weakened by the loss of elastic tissue, and, yielding to the pressure beneath, was pushed out in a hernia-like swelling.

(12) Epidermophyton Infection of the Scalp.

Richard Weiss describes a case of ringworm infection of the scalp due to the epidermophyton fungus (*Journ. Americ. Med. Assoc.*, September, 1917). The present trouble began in the patient, a man *aet.* 27, two years before, starting as small vesicles on the plantar surface of the right foot. The condition spread slowly upwards between the toes, and around the nails. Itching was severe, and there was weeping and crusting. One month later the hands became involved, vesicles appearing on the sides of the fingers. A few months later patches appeared on the arms and about the genitals. Here, as elsewhere, the primary lesions consisted of tiny vesicles and scaly papules, in a typical ring arrangement, which spread at the periphery whilst clearing in the centre. Examination of the feet showed that maceration was an especial feature between and behind the toes. The back of the scalp, where the lesion first appeared six months before, was extensively involved. This lesion took the form of a segment of a circle, and was about 15 cm. long. The advancing border consisted of a ridge of scaly papules but no vesicles were to be seen. Cultures made from scales from the edge of the scalp lesion produced on glucose-agar at an early stage small yellowish colonies, which, as they became older, assumed a dull white colour with a slight tinge of yellow. The fungus could not be found in the hairs removed from the affected area on the scalp. The disease failed to respond to treatment by Whitfield's salicylic and benzoic acid ointment, but the lesions on the scalp and genitocrural regions yielded to a 3% pyrogallic ointment, and those on other regions to a 3% chrysarobin ointment. The author states that the occurrence of the disease on the scalp is contrary to the opinion expressed by Sabourand, who stated that the epidermophyton required the bottom of a flexure for its inoculation and that it did not attack the hair.

(13) Bone Changes in Leprosy.

J. A. Honey (*Americ. Journ. Roentg.*, October, 1917) has collected the literature dealing with the changes affecting bones in leprosy. After discussing the findings, he tabulates them. He also deals with the pathological changes in the nerves and other tissues, and refers to the bone changes met with in other diseases of the atrophic type. On the basis of the results of 11 cases, he makes the following observations: (1) The severity of the bone changes is apparently irrespective of the general condition of the patient. (2) Every case showed definite bony lesions. (3) No healing of fractures occurs. (4) Atrophic bone changes occur in nodular leprosy, demonstrating the fact that definite nerve disturbances are as much a part of nodular leprosy as inflammatory bone absorption is of nerve leprosy. (5) In no case could it be said that the bone lesion arose internally or externally. (6) The changes to be expected are atrophic changes in nerve lesions, and in the nodular type inflammatory or hypertrophic. He points out that the absorption of bone and bone salts is an early metabolic change, and that atrophic bone changes, with tissue absorption, if due wholly to nerve involvement, are necessarily earlier than outward manifestations.

(14) The Roentgen Ray Diagnosis of Disease of the Gall-Bladder.

A. W. George and R. D. Leonard (*Americ. Journ. Roentg.*, July, 1917) point out that so far attention has only been devoted to the detection of gall-stones, and not to gall-bladder disease apart from them. They hold that this is not sufficient, and they maintain that only when some pathological change has taken place in the walls of the gall-bladder, or its contents, can its shadow be demonstrated on the X-ray plate, and that a normal gall-bladder never casts a shadow. They thereby justify their original term, "suspicious shadow." They discuss the position of the gall-bladder shadow, its size and shape, and hold that the essential point in diagnosis by X-rays is the presence or absence of this shadow.

(15) Suppurative Disease of the Ribs and Sternum.

Emil Beck (*Americ. Journ. Roentg.*, October, 1917) expresses the opinion that the reason patients suffering from suppurative disease of the ribs and sternum, frequently derive little or no benefit from repeated operations by competent surgeons, is probably that of one or more affected ribs have been overlooked. These ribs on exposure may appear to be normal. The disease is often confined to the cancellous channel, or to its under surface. He states that a probe is useless in determining the extent of the disease in these cases, and advocates the injection of every sinus with bismuth paste, preliminary to a stereoscopic radiographic examination to display the exact extent and localization of the trouble prior to operation.

(16) The Treatment of Graves' Disease by Roentgen Rays.

M. Seymour (*Boston Med. and Surg. Journ.*, October, 1916) has treated 80 patients suffering from exophthalmic goitre with Roentgen rays at the Massachusetts General Hospital. He points out that the lack of uniformity in the results obtained by different men is due to inaccuracies of dosage, some patients receiving very small doses that would cause no action, others being burnt. Of his 80 cases, 73 showed improvement, and five cases

showed no change. Nearly all the patients gained weight. He describes the technique and dosage employed in these cases, and lays stress on the deep filtration employed.

BIOLOGICAL CHEMISTRY.

(17) Injections of Hæmoglobin.

A. W. Sellards and G. R. Minot have employed injections of solutions of hæmoglobin into man for the study of different forms of anæmia and of lesions of the liver (*Journ. Med. Research*, September, 1917). It is well known that the continuous formation and destruction of the red blood corpuscles is accompanied by a series of complicated chemical changes in the pigment of the blood. Until recently the investigation of the changes following the intravenous injection of hæmoglobin has been confined to animals, as it has been held that free hæmoglobin is toxic to man. The authors have found that moderately large doses of hæmoglobin can be introduced into the blood of man without any untoward effects, despite the occurrence of hæmoglobinuria. For these studies it has become necessary to prepare a large amount of a solution of hæmoglobin in such a form that the dose of hæmoglobin administered can be measured with accuracy. Such a solution should be highly concentrated, free from stroma and lipoids and from any excess of the agent used for laking the corpuscles, and it should contain hæmoglobin unaltered by the process of laking the blood corpuscles. As it is known that the hæmoglobin of all mammals are chemically identical, commercial preparations of dried blood have been tested as a source of hæmoglobin. This hæmoglobin does not, however, dissolve easily, so that desiccation appears to have changed its physical characters. The authors have used human blood taken from patients suffering from cardio-renal diseases, and have laked the corpuscles by means of ether. The excess of ether has been removed with a current of air. By filtration through porcelain the solution has been freed from particles and bacteria. The solution has contained about 20% hæmoglobin. Six normal persons have received intravenous injections of 17 or 20 c.cm. of this solution. The injections have occupied five minutes. In four of the subjects hæmoglobinuria has developed, unaccompanied by any other symptoms. In two subjects the injection has caused neither signs nor symptoms. Repeated injections into the same individual, at intervals of several days, lead to disappearance of the hæmoglobinuria following the injection. Three patients with lesions of the liver have been injected in the same way. No hæmoglobinuria and no toxic effects have been observed. Two of these patients had syphilitic cirrhosis of the liver, while the third exhibited extensive carcinomatosis. The introduction of 17 c.cm. of the solution into a patient suffering from pernicious anæmia, has been followed by pronounced hæmoglobinuria, the urine becoming very dark in colour. In addition, the patient has become drowsy, and this state has been followed by unconsciousness. The reflexes have remained active and there has been no sign of paralysis. The pulse, temperature and respiration have not been altered. A second injection has caused a similar toxic condition. Injections of diluted solutions into other patients suffering from pernicious anæmia, have not been followed by toxic symptoms. The authors are of opinion that the injections of hæmoglobin into patients with pernicious anæmia produce definite improvement in the anæmia and that the improvement runs parallel to the elimination of the hæmoglobin. They advocate caution in giving injections of hæmoglobin in advanced cases of pernicious anæmia.

(18) Dietetic Value of Wheat.

E. B. Hart, J. G. Halpin and H. Steenbock have fed chickens upon various diets containing wheaten products (*Journ. Biol. Chemistry*, August, 1917). The authors point out that the popular view that wheat is superior in nutritive worth to other cereal grains is not borne out by their feeding experiments with mammals. The proteins of wheat are of inferior quality, and may be responsible for some malnutrition. When chickens, started at half their mature weight, are fed on a ration of maize meal, wheaten gluten, and calcium carbonate, or on a ration of wheat meal, wheaten gluten and calcium carbonate, they make slow growth and produce fertile eggs. On the same diet swine show loss of weight, cessation of œstrum and in time exhibit a condition resembling polyneuritis. If, however, chickens are fed at an earlier period, *e.g.*, when they are only two months old, they will grow slowly or maintain their weight on the diet of maize meal, wheaten gluten and carbonate of lime, but will die in three months when restricted to wheaten products. When a more complex salt mixture and the same caseinogen have been added to the ration, no improvement has been observed in the nutrition of young chicks. If, however, butter fat has been supplied along with caseinogen and a salt mixture, the wheaten ration serves for complete tolerance and well-being. The authors are of opinion that these results do not mean that wheaten products must not be fed to growing chickens or mammals, but that the diet must not be composed exclusively of these materials. They emphasize their result that mature chickens maintain their weights on rations made up entirely of wheaten products.

(19) Toxicity of Intestinal Secretions.

D. M. Davis and H. B Stone have tested the toxicity of the intestinal secretion of dogs (*Journ. Exper. Medicine*, November, 1917). The secretion is obtained by irrigation of the duodenum and jejunum of dogs anæsthetized with chloroform. Precautions are taken to exclude any pancreatic juice from the intestine while the fluid is being collected. It had been stated that when these fluids are kept for some days after the addition of chloroform or toluene, they cause toxic symptoms upon injection into dogs. The symptoms are similar to those observed in dogs in which closed loops of intestine are separated off. In this investigation it has been noted that the intestinal washings have no toxic properties when injected into dogs immediately after collection. If the fluid is heated to 90° C., it developes no toxic qualities. If the secretion is heated and incubated the fluid shows toxic properties after 18 hours' incubation. If the heating is omitted the fluid does not become toxic. The authors ascribe the effects of heating to the destruction of ferments. In unheated fluids the ferments destroy the toxic substances.

(20) Carbon Dioxide in Blood.

G. A. Buckmaster has tried to find whether hæmoglobin or any other constituent of corpuscles is capable of setting carbon dioxide free from solutions of carbonate or bicarbonate of soda (*Journ. Physiology*, March, 1917). It is well known that the blood gives up the whole of its available carbon-dioxide when exposed to a vacuum, but that serum will not do so without the addition of an acid. This difference in behaviour has been ascribed to the action of hæmoglobin as a weak acid. It is usually stated that the addition of proteins to a solution of sodium carbonate will bring about the liberation of the whole of the carbon dioxide in the carbonate on exposure to a vacuum. The investigation which the author has carried out affords no confirmation of this statement. In all his experiments he has found that the subsequent addition of acid to mixtures of blood and carbonate or bicarbonate of soda subjected to a vacuum, has led to a further evolution of carbon dioxide.

(21) Secretion of Urea and Sugar by the Kidney.

A. R. Cushy has repeated an experiment of Heidenheim in which the latter observed the passage of sulphindigotate of soda through the epithelium of the urinferous tubules of the kidney after section of the spinal cord (*Journ. Physiology*, March, 1917). Instead of injecting the dye and observing how it accumulated in the tubules after cessation of glomerular action consequent on the fall of blood-pressure, the author estimated the quantity of urea or sugar in the kidney. The amount of urea has been measured by treating the pulped kidney with urease. The glucose was ascertained after the administration of phloridzin. No evidence has been obtained of any accumulation of urea or glucose, and the author concludes that these substances are secreted in a different way to sulphindigotate of soda and that all conclusions drawn from such an analogy may be erroneous.

LODGE PRACTICE IN VICTORIA

The justice of the demands of the medical profession in Victoria for an amendment in the conditions of lodge practice has led to practically a unanimous resolution of the lodge medical officers, both members of the Branch of the British Medical Association and otherwise, to tender their resignations as from January 31, 1918. Mr. Bowser, the Premier of Victoria, has endeavoured to assist the disputants to come to an amicable agreement, and at his request the parties have agreed to confer under the chairmanship of his Honour Judge Moule. The opening of the Conference has been fixed for January 18.

In the meanwhile, the friendly societies of Geelong have made a hostile movement by advertising throughout the States for applications from medical men for the appointment of three full-time medical officers to attend some 5,000 members and their families. From Geelong it is reported that six applications have been received and that within a few days the appointment will be made. The Council of the Victorian Branch of the British Medical Association has taken a firm stand in the matter, and has intimated to the Premier that further action on the part of the Geelong friendly societies will necessitate the immediate consideration by the Council of the question of withdrawal of the medical delegates from the Conference.

At the same time it is well that the friendly societies should recognize that the demands for better conditions of contract have been made by 96% of the lodge medical officers in Victoria, and that any attempt to establish medical institutes, as at Geelong, will be met by the full strength of the medical men throughout Victoria, who may be depended upon to stand loyal at the back of their confrères in Geelong.

No individual lodge appointment will be accepted until the new form of agreement is agreed to generally by the lodges. This in effect means that the medical service to the friendly societies will cease absolutely from February 1, 1918. It is not improbable that any hostile demonstration by the Friendly Societies' Association will be met by an amendment of the terms of the proposed lodge agreement which will ensure conditions much more favourable to lodge medical officers. Already there is under consideration the proposal to make the income limit retrospective; and should this be effected, all present members of lodges who are in receipt of over £312 per annum, will cease to be eligible for medical benefits.

The fight at Geelong is not a local one, but is being contested on behalf of all lodge medical officers throughout Victoria, and these and other medical practitioners are asked to continue steadfast in their loyalty to the cause which the Victorian Branch of the British Medical Association has taken in hand to ameliorate the conditions of medical practice for one section of its members.

THE EARLY TREATMENT OF CANCER.

Through the courtesy of the Minister of Public Health of New South Wales, we are enabled to publish the contents of a poster which he is issuing for public information.

Precautions Regarding Prevention of Cancer.

It is a well established fact that of the number of persons who die each year from cancer, many could have been saved if they had submitted themselves to medical treatment in the early stages of the disease. On questioning patients as to why they did not apply to a doctor earlier, they almost invariably state that, as the early symptoms were unaccompanied by pain, it was not thought that anything serious was the matter.

In order, therefore, to call the attention of the public to the significance of certain signs and symptoms, and to the vital importance of acting promptly on the occurrence of these, it has been decided to make the following facts public.

The only cure for cancer, at present known, is its early and complete removal. Cancer removed early has been proved conclusively to be a curable disease.

If neglected and not removed in its early stages, it is fatal in almost every instance.

The importance of its early recognition and early removal is, therefore, evident. For this purpose the assistance both of the public and of the medical profession is requisite, and a grave responsibility rests on both. It is only by their mutual co-operation that the ravages of this terrible disease can be lessened.

The following information should be of vital assistance to the public, as it is no exaggeration to say that, if acted upon, the result would be the annual saving of great numbers of lives which at present are inevitably lost from this cause.

Cancer in its early and curable stage usually gives rise to no pain or symptom of ill-health whatever. Nevertheless in its commonest situations the signs of it in its early stage are conspicuously manifest.

The following may usually be regarded as signs, and should be brought under notice of a medical practitioner without any delay:—

(1) Any swelling occurring in the breast of a woman after 40 years of age. A large proportion of such swellings are cancerous and can be cured by removal.

(2) Any bleeding, however trivial, occurring after the change of life means almost invariably cancer, and cancer which is then curable. If neglected till pain occurs, it means cancer at a stage which is almost always incurable.

(3) Any irregular bleeding occurring at the change of life. It is not the natural method of the onset of the change of life, and in a large number of cases means commencing cancer.

(4) Any wart or persistent sore occurring spontaneously on the lower lip of a person over 45 years of age is almost certainly cancerous. If removed at once the cure is certain, if neglected the result is inevitably fatal.

(5) Any sore or swelling occurring on the tongue or inside the mouth of a person over 45 years of age. A very large proportion of such sores or swellings occurring at this time of life are cancerous, and if neglected for only a few weeks the result is almost inevitably fatal. If removed at once the prospect of cure is good.

(6) Any bleeding occurring from the bowel after 45 years of age, commonly supposed by the public to be "piles." A large proportion of such cases are cancerous which at this stage are perfectly curable.

(7) Any warts, moles, or other growths on the skin of elderly persons which are exposed to irritation. A large number of them, if neglected, terminate in cancer.

Avoid irritation of the tongue and cheeks by broken, jagged teeth, and the lower lip by clap pipes. Many of these irritations, if neglected, terminate in cancer.

Although there is no evidence that cancer is communicable from one human being to another, it is desirable that rooms occupied by a person suffering from cancer should be disinfected from time to time and kept scrupulously clean.

Hospitals.

THE QUEEN'S MEMORIAL INFECTIOUS DISEASES HOSPITAL.

The Annual Report of the Board of Management of the Queen's Memorial Infectious Diseases Hospital for the year ending June 30, 1917, together with the Medical Superintendent's report, has been issued in book form. The most important matter contained in the report of the Board of Management may be briefly summarized as follows. An amending Act providing the Board with powers to borrow money to the extent of £50,000 for the purpose of meeting the expenditure on the new building has recently been passed. Negotiations have taken place with the State Savings Bank, and a loan of £45,000 is being arranged. The estimates of expenditure prepared in February, 1915, was based on a daily average of 200 patients. As this daily average exceeded 250, the Board was faced with an ex-

penditure account of £3,785 in excess of the estimates. During the year, over £70,000 has been paid for new buildings, and for furnishing and equipment.

The new quarters for the nurses and female domestic staff were ready for occupation in April, 1917, while the new wards, dining block, administration block and kitchen, were formally opened on June 6, by the Minister for Health. In addition, the whole Hospital was sewered, a hot water service was installed, and various other improvements were carried out.

From the Medical Superintendent's report we learn that the total number of patients under treatment during the year was 3,747. Of these, 3,443 patients were admitted during the year, and 3,304 were discharged. The number of deaths was 122, or, excluding those that took place within 24 hours of admission, 102. The case mortality, including all the deaths, was 3.53%, or, if those which occurred within 24 hours of admission be excluded, it was 2.99%.

Diphtheria.

The total number of patients suffering from diphtheria under treatment was 2,661. Of these 2,442 were admitted during the year. The number of patients discharged was 2,377, and of those who died 96. The case mortality was therefore 3.9%. Sixteen of the patients died within 24 hours of admission. In 1,742 cases the disease was faucial. The average amount of antitoxin given per case was over 8,000 units. The mortality in this series was 0.2%. There were 44 cases of nasal diphtheria, 420 of faucial and nasal diphtheria and 33 of faucial, nasal and laryngeal diphtheria. In the purely nasal cases, an average of 6,000 units of antitoxin was given. The amount of antitoxin given in the complicated nasal cases was considerably higher. In the purely nasal cases, the mortality was 2.2%; in the faucial and nasal cases it was 16.4%, and in the faucial, nasal and laryngeal cases it was 27.2%. The larynx was alone involved in 52 cases, and was involved as well as the fauces in 147 cases. In the former group the mortality was 11.5%, and in the latter 4.8%.

Of the 2,442 patients, 583 were under five years of age; 1,084 were between five and ten, 392 were between 10 and 15, and 259 were between 15 and 25; 124 were over 25 years of age, and none of them died. The mortality in the first group was 8.2%, in the second was 3.8%, in the third was 1%, and in the fourth was 0.7%. The efficacy of treatment by antitoxin is clearly shown in the mortality figures of patients grouped according to the day of disease at the time of admission. Dr. Scholes calls attention to the fact that, since the beginning of illness is dated according to information obtained by the nurse from the parents, the data can only be approximate. The mortality among the patients who were admitted one day after they were taken ill was 1.6%. When the illness had already lasted two days before admission the mortality was 2.9%; when it had lasted three days it was 4.2%; when it had already lasted four days it was 6.2%, and when it had lasted five days it was 10.2%. It would be interesting to learn how far the local type of disease and the age of the patient influence the mortality in the groups arranged according to the day of disease.

There were 232 children who were suffering from laryngeal diphtheria. Of these, 68 were subjected to intubation and four required tracheotomy. Two of the children who had tracheotomy done, died, and 13 of those who were intubated. The mortality among the intubated patients was 19.8%, while the total mortality among the patients suffering from laryngeal diphtheria was 9.5%. As is usual, the mortality was heavy among the younger children.

The most common complication met with was non-suppurative adenitis. Nearly one-third of the patients suffered in this way. Albuminuria was noted in 11.6%, toxic myocarditis in 10.6%; various forms of paralysis in 6.1% and serum effects in 8.4%.

Scarlet Fever.

During the course of the year, 668 patients were admitted for scarlatina. The number of patients discharged during the year was 608, and the number of those who died from this disease was 12. The case mortality was 1.86%. Of the 668 patients admitted, 114 were under five years of age. Of these, six died, which is equal to 5.3%. There were 292 patients between the ages of five and ten, and four deaths in this group. Of the 262 patients over ten years of age, only two died. The chief complications among the scarlet fever patients were follicular tonsilitis, which affected 35% of the patients, rhinitis, which was seen in 19.9%, adenitis, which was seen in 14.1%, otitis in 9.4% and albuminuria in 8.8%. Only four cases of true nephritis were dealt with. The most common associated infection was diphtheria, no less than 119 patients suffering from scarlatina and diphtheria. Measles was associated with scarlatina on 11 occasions, parotitis on 8, pertussis on three and varicella on two.

Morbilli.

There were 76 patients admitted during the year for measles. Of these, 23 were under five years of age, and 14 between five and ten years of age. Three of the children under five years of age died. The case mortality was therefore 3.89%. The complications, as is usual, included broncho-pneumonia, otitis media and laryngitis.

Pertussis.

There were 29 patients suffering from pertussis admitted to the Hospital during the year. All of them were under ten years of age, and 23 were under five years of age. There were seven deaths, and consequently the case mortality was 22.95%. Of the 29 patients, 22 showed signs of broncho-pneumonia and five were also suffering from gastro-enteritis. The prevalence of these two complications was responsible for the relatively high mortality.

Cerebro-spinal Fever.

There were four cases of epidemic cerebro-spinal meningitis, two of which are reported to have been "fairly severe." Antiserum was administered in one case only. There were no deaths.

Miscellaneous.

In addition to the diseases mentioned above, various other diseases were treated in 226 instances. There were four deaths in this category, one from puerperal septicæmia, two from pharyngitis, septic throat, etc., and one from broncho-pneumonia.

The number of resident medical officers was reduced to two during part of the year. From one to three senior students were engaged to assist in the work. Dr. Scholes calls attention to the shortage of senior nurses. He states that, as nurses who have had no training in the nursing of infectious cases, nevertheless undertake these cases in private practice, no inducement exists for probationers to give up a few months of their time in training to gain a knowledge of these diseases. The Hospital has now been enlarged, and contains accommodation for 514 patients with the necessary staff.

Special Correspondence.

(By our Special Correspondent.)

LONDON LETTER.

Flavine.

The new and powerful antiseptic, flavine, was described by Sir John Bland Sutton to a Court of Governors of the Middlesex Hospital on May 31, 1917. In his address, Sir John said that recently, in spite of the absence of many members of the staff at the war, valuable research work had been carried out in the laboratory of the hospital, especially in connexion with a new coal-tar product of immense antiseptic proclivities, to which the name flavine had been given. Coal-tar had furnished art and science with very useful products since Perkins obtained from it the colour known as mauve. The synthetic chemist of to-day was a more cunning magician than any described in the Arabian Nights. He was able to produce all the colours of the rainbow. He could create from tasteless materials substances five hundred times sweeter than sugar, and from his magic bag he could bring forth powerful drugs, like salicylic acid, novocaine, and salvarsan. This juggling could produce a powerful antiseptic or a deadly high explosive like trinitrotoluene. These dyes and coal-tar colours had been of great use to anatomists, because by their aid they had

been able to unravel the warp and the woof of living bodies in health and in disease. These colours also rendered bacteria visible. It was quite reasonable to believe that some colours entered into chemical relationship with the protoplasm of the bacteria. These bacteria entered animal bodies and got into the blood. They were conveyed through the natural gates and alleys of the body, and lodged in the tissues. Pasteur discovered their disease-producing propensities, and Lister devised means for preventing their getting into wounds. Lister knew that medical men were more or less powerless after the bacteria got into the wounds. The substance he used was crude carbolic acid, which did destroy the bacteria, but damaged the tissues, and sometimes killed the patient. They had for years been desiring an antiseptic that would destroy the bacteria without damaging the tissues or injuring the patient. They were now approaching that goal. It had been discovered by Dr. Browning in the laboratory of the hospital that one of these coal-tar dyes, named flavine, possessed the necessary qualities. It destroyed bacteria; it did not destroy tissue, and serum increased its potency. A solution of 1 in 1,000 had twenty times the antiseptic power of perchloride of mercury—a deadly poison. As soon as Dr. Browning discovered it, he was naturally anxious to try it in that hospital, and it had been very successful. Many of the trials took place in his (Sir John's) own wards, and he was satisfied that they had got a good thing, but he had felt it incumbent upon him to make a trial upon his own lines, for he was more or less sceptical with regard to antiseptics, having nearly all his life been an aseptic surgeon. But he was impressed with this new antiseptic. Dr. Browning gave him every facility. There were three septic conditions admitted to hospitals almost daily—acute appendicitis, acute inflammation of the gall-bladder, and acute disease of the middle ear. In the very week he determined to carry out these trials, quite a number of these cases were admitted to his wards. They were so serious that he became alarmed and very anxious, for he feared that his clean cases would become infected. Indeed, he became so alarmed that he really thought he would have to close the ward. He used flavine, and in a few days everything was all plain sailing again. The plague was stayed, the patients were happy, and so were the sisters. The patients recovered, and no others suffered any inconvenience. After such an experience, he made it his business to see what was going on in the special departments. He got the most glowing accounts of it from the ear department. He spoke to the ophthalmic surgeon, and he was even more in favour of it, saying he could use it without damage even to the delicate tissues of the eyes of a baby. A little girl was admitted to the hospital whose eyes were streaming with pus. She said the cat's eyes at home were just like them. She was treated with flavine, and so was the cat, and everything was all right again within forty-eight hours.

That prompted him to say a few words about sepsis among the animals in France—the horses and mules with the Army. Septic disease, gunshot wounds, and a peculiar septic ulceration of the legs gave a great deal of trouble. It had been arranged to try flavine on the horses. He knew there were some surgeons who jibed at flavine on account of its colour. Of course it had a high colour; it was a yellow dye. "Monkey brand" would not wash clothes, and flavine would not do everything, but it would kill bacteria. When men like Dr. Browning discovered a useful thing like flavine, it did good not only to the patients in the Middlesex Hospital, but to wounded soldiers, and to the patients who thronged hospitals throughout the world. They got all these benefits without any pecuniary gain to that institution, or to the individual. A reliable antiseptic such as that was a matter of national importance.

Flavine is diamino-methyl-acridium chloride, which was originally prepared by Benda at the desire of Ehrlich. It is a product of coal-tar, and is akin to the substance used for polishing brown leather. The late Paul Ehrlich had it prepared for another purpose, and it was reserved for Dr. Browning to make one of the greatest discoveries in chemico-therapy.

The value of the discovery was proved in November last. But hitherto flavine has not been procurable except in a small quantity, although its value in alleviating suffering and saving life is inestimable.

The War and the Supply of Synthetic Drugs.

Mr. F. A. Hocking read an interesting paper recently before the Royal Society of Arts on the question of the drug supply after the war. He pointed out that scientists were fully equal to the solution of all questions relating to synthetic drugs. It was assumed that the enemy countries would put forth the most strenuous efforts to regain the trade enjoyed by them before the war, and, profiting by the lower rate of wages ruling in Germany as compared with this country, and aided probably by State subsidies, it was expected they would offer synthetic drugs at prices with which British manufacturers, if left to their own resources, would be unable to compete. If the production of synthetic drugs established here during the past two years was to survive the war, some form of State aid seemed to be necessary, but as to the shape which Government assistance should take difference of opinion existed. Co-operation among manufacturing chemists was highly desirable in arranging that too many firms were not engaged on turning out the same products, and by organization and mutual concession the cost of manufacture could be reduced to a minimum. It was to be noted that certain intermediate products were required very largely in the dye industry, and upon the development of the latter to some extent depended the success of the synthetic drug industry.

The Specific of Typhus Fever.

After three years' research work in the Japanese Imperial Government Laboratory, Professor Kenzo Futaki claims to have discovered the specific cause of typhus fever. He calls this new germ the *Spirochaeta exanthematotyphis*. In the case of eight patients who have died from typhus fever he is said to have clearly demonstrated the presence of this spirochaete in the kidneys in seven of the bodies examined. Professor Futaki has succeeded in infecting a number of monkeys and guinea-pigs with the spirochaete taken from the typhus fever patients, and from these monkeys infected with the germ he has recovered the identical spirochaete.

The Japanese medical profession has been informed of his discovery, and, after thorough investigation, has accepted its accuracy. At a gathering in St. Luke's International Hospital, Professor Futaki demonstrated to the staff the presence of *Spirochaeta exanthematotyphis* in sections of kidneys taken both from human subjects and monkeys dead from the disease.

This new discovery will be received with interest by the medical profession of the world, and it is to be hoped it will form an important link in establishing some specific treatment for the cure of the disease. The mortality from typhus in Japan is very high, especially in over-crowded camps, and unhygienic surroundings. Professor Futaki is already well known to scientific workers through his discovery about a year and a half ago of the cause of the fever which arises from rat bite. This also is due to a spirochaete, and he gave it the name of the *Spirochaeta morsus muris*.

Correspondence.

Owing to the limited size of *The Medical Journal of Australia*, it may be necessary to exclude letters containing more than 500 words.

ALBEE'S OPERATION.

Sir,—I have to thank Dr. Binney for his communication re Albee and his operation for spinal disease. Dr. Binney questions whether Albee ever limited the treatment to a few weeks.

I quote from Albee's own article (*v.* Johnson's "Operative Therapeusis," Vol. II., p. 178): "Although it is known from experimental work that the graft becomes united by bone union in four weeks, nevertheless the patient is confined in a recumbent position on a fracture-bed for six to eight weeks, after which he is allowed to walk about without apparatus for a part of the day. Where a straight graft of sufficient strength is used, there is no necessity for a plaster jacket or support. In dorsal cases where a deformity has developed, necessitating pronounced bending of the graft, a spinal support may be advisable for a few months."

There is little doubt that in early and suitable cases very little further treatment is required beyond that of the weak-

ness entailed by rest in bed for several weeks and avoidance of knocks and falls. Even in more advanced cases it will be found that in the great majority Albee's operation will greatly lessen the duration of treatment.

Doubtless it is ever wise to err on the side of more rest in the more serious cases.

Yours, etc.,

THEODORE AMBROSE.

Condurra, 256 St. George's Terrace,
Perth, December 20, 1917.

LONGEVITY AT STROUD.

Sir,—My death certificate book for the year 1917 appears to me to be unique. I append the record.

Deaths In and Around Stroud for Year 1917.

	Sex.	Date.	Age.	
1. A.M.N. ..	F.	Feb. 1	81 yrs.	Wife of 4.
2. E.C. ..	F.	Feb. 25	75 yrs.	
3. H.C.S. ..	F.	April 19	82 yrs.	
4. A.Mc.M. .	M.	April 26	81 yrs.	Husband of 1.
5. H.S.	F.	May 12	78 yrs.	
6. G.M. ..	M.	May 14	68 yrs.	Pleurisy & Pneum'ia.
7. W.H.M. ..	M.	June 24	62 yrs.	Pneumonia.
8. J.S.F. ..	M.	July 13	2½ days.	
9. B.T.	M.	Aug. 9	15 days.	Twins.
10. C.P.	M.	Nov. 29	89 yrs.	
11. M.N. . ..	F.	Dec. 22	88 yrs.	
12. J.G.	F.	Dec. 31	$102^{10}/_{12}$ yrs.	

Yours, etc.,

R. J. ORFORD.

Stroud, New South Wales,
January 1, 1918.

THE MENACE OF THE BIRTH-RATE.

Sir,—The question raised by Professor Berry in his address on "The Menace of the Birth-rate" demands more than a passing notice, and it is fitting that he, as President, should direct our attention to it. If we want the public to look to us for guidance on the matter, it is necessary that we consider it from a wider standpoint than a merely medical one, as it is a national matter and therefore must be studied from many ponts of view. Very largely it is an economic question. No one will venture to challenge the truth of the facts stated by Professor Berry. The neo-malthusians, however, still say, as they did before the war, that the malthusian law of pressure of population on subsistence resting, as they assert, on a firm scientific foundation, the menace is more apparent than real. Few will agree with them, and when we reflect upon the appalling loss of life occasioned by the war and consider it in conjunction with the high prevailing infantile mortality, we cannot but have the gravest reasons for anxiety.

So many factors enter into the consideration of the question that possibly the columns of a medical journal are not the proper place to discuss in full so wide a subject, but, perhaps, Sir, you will allow me to comment on one or two statements in Dr. Hamilton Russell's letter on the matter in your last issue. He says this is "a woman's war." Now, is this the case? If by woman's war, he means a woman's only, and that certainly seems to be implied, then I make bold to say he is wrong. It is no more a woman's than a man's war, and if a greater share of blame is to be attached to one sex more than another, it is the man more than the woman who is to blame, because it is the pressure of the man's point of view which is so frequently the cause of the limited family or sterile marriage. Maternal instinct in a woman is, as a rule, so strong that she will readily undergo many sacrifices for it, and when she seeks to avoid an increasing family, it is often not from a selfish point of view, as she, more than man, recognizes that if a child has a right to be born, it has a right to be born well and to have every chance of development. It is the thriftless and thoughtless who bring into the world a larger family than they can support. Let mothers be assured that their children will be thoroughly provided for and then there will be little to complain of.

Throughout the whole of Mr. Russell's letter he writes as if woman alone is to blame for "the slowing-down policy," and says she must make it her aim to have a big family. He starts by saying our first effective step must be to inform her of what is required of her. Is it quantity rather than quality that is to be considered? Even so, is it necessary, as he suggests, to inform her and her alone what is required? Now, I ask why not tell the man also? I admit and apparently Mr. Russell does also, that an appeal to woman on patriotic and higher grounds is likely to have more effect than a similar appeal to man, but if it fails, is it right to blame the woman only? Maternity implies far more demands, not only on her health, but also on the leisure, temper and endurance of the woman than on the man, and therefore she should have the privilege of saying when it should or should not be. As men we have no more right to expect that she should devote her whole soul and body entirely to maternity than we expect a father to give the whole of his to paternity, and it is high time we shook off some of our traditional shackles in this respect. Woman, especially the married woman, has a right to have time for her own development, and if we are wise we shall see that she has it. Motherhood, in its true sense, is something more than a mere physiological function. Every practitioner knows from actual experience that many women are quite unfit to act as mothers, yet it is more from lack of training than anything else, and the remedy lies not so much with women as with our educational authorities, among whom we may perhaps class our profession. It is quite absurd to blame a mother whose child dies for want of motherhood, when she has never had the chance of learning mothercraft.

Again, may I dissent from Mr. Russell's view when he contrasts the self-sacrifice of husbands, sons and brothers going forth to war with that of the women who remain behind? Is it not the latter who make the bigger sacrifice and suffer the more? Would not women, if given their choice, be glad to play the part men are doing and in doing so count it less heavy than the hours and days of weary waiting, constant anxiety and dread suspense, which is the lot of those denied the relief of activity. Mr. Russell suggests that if they can't afford to bring up a large family mothers should be systematically helped, and I am sure we all agree with this, but instead of talking about the number of children a woman should produce, would it not be better to take care of those she does produce? This also has the merit of being something we can do and do at once, whereas we have to wait for the potential children, and even our waiting will give no guarantee of their production. When we realize, as Professor Berry pointed out, that in 1915 there died every hour 12 children under 1 year, as against 9 men killed every hour in the British forces, we recognize there is no failure on the part of many women in producing children, but the tragedy of it all is that so much of their travail is worse than in vain. If those born are effectively cared for, then the birth-rate menace will be greatly lessened, and those who can best avert the loss will be encouraged to do so.

Is not this the line on which our profession should come out? Let us say definitely that no child born, who might live and be efficient, shall die. As individuals we have talked long enough about it, but if, as a profession, we rise unitedly against prevailing conditions, and make this our war, not a woman's war only, the general public would follow us gladly. In the bloodier war the world acknowledges its debt to our profession; would it not do so in this the more dangerous and tragic as far as the British race is concerned? Let us remember the golden age is not behind but before us, and as John Burns says: "Give us good motherhood and good pre-natal conditions and then we need have no despair for the future of this or any other country."

Yours, etc.,

JAMES BOOTH.

Melbourne, January 4, 1918.

Books Received.

THE EDINBURGH MEDICAL SERIES (General Editor, John D. Comrie, B.Sc., M.D., F.R.C.P.E.); RADIOGRAPHY AND RADIO-THERAPEUTICS, PART I., RADIOGRAPHY, by Robert Knox, M.D., M.R.C.S., L.R.C.P.; 1917. London: A. & C. Black, Limited. Royal 8vo., pp. 383, with 78 plates and 337 illustrations in the text. Price, 30s. net.

NERVE WOUNDS, SYMPTOMATOLOGY OF PERIPHERAL NERVE LESIONS CAUSED BY WAR WOUNDS, by J. Tinel; preface by Professor J. Dejerine; authorized translation by Fred. Rothwell, B.A.; revised and edited by Cecil A. Joll, M.B., M.S., B.Sc., F.R.C.S.; 1917; London: Baillière, Tindall & Cox. Large Royal 8vo., pp. 317, with 323 illustrations. Price, 15s. net.

MEMORANDA ON ARMY GENERAL HOSPITAL ADMINISTRATION, by various authors, edited by P. Mitchell, M.D.; 1917. London: Baillière, Tindall & Cox. Demy 8vo., pp. 109; illustrated. Price, 5s. net.

THE VENEREAL DISEASES PROBLEM, A BOOK MORE ESPECIALLY FOR NURSES AND MIDWIVES, by J. K. Watson, M.D.; 1917. London: Baillière, Tindall & Cox. Crown 8vo., pp. 54; illustrated. Price, 2s. 6d. net.

INJURIES OF THE FACE AND JAW AND THEIR REPAIR, AND THE TREATMENT OF FRACTURED JAWS, by P. Martiner and Dr. G. Lemerle; translated by H. Lawson Whale, M.D., F.R.C.S.; 1917 London: Baillière, Tindall & Cox. Crown 8vo., pp. 345, with 168 illustrations. Price, 5s. net.

A TEXT BOOK ON GONORRHŒA AND ITS COMPLICATIONS, by Dr. Georges Luys; translated and edited by Arthur Foerster, M.R.C.S., L.R.C.P.; second revised edition; 1917. London: Baillière, Tindall & Cox. Royal 8vo., pp. 386, with 204 illustrations. Price, 18s. net.

Medical Appointments.

Dr. John Pollock (B.M.A.) has been appointed Officer of Health to the Bacchus Marsh Shire, and Dr. Francis Ernest Langley (B.M.A.) has been appointed Officer of Health to the Cranbourne Shire, Victoria.

It is announced in the *New South Wales Government Gazette* of December 28, 1917, that the undermentioned appointments have been approved:—

Dr. Renzo Rosati (B.M.A.), as Government Medical Officer at Braidwood, New South Wales.

Dr. Hugh Busby (B.M.A.), as Government Medical Officer at Bathurst, New South Wales.

Dr. John Kerr (B.M.A.), as Government Medical Officer at Wollongong, New South Wales

An Advisory Committee for the purposes of the *Pure Food Act*, 1908, New South Wales, has been appointed. The following are the members:—

Dr. R. T Paton, President of the Board of Health (B.M.A.), Professor C. E. Fawsitt, Dr. J. B. Cleland (B.M.A.), Dr. W. G. Armstrong (B.M.A.), Dr. J. S. Purdy (B.M.A.), Thomas Cooksby, Esquire, B.Sc., Ph.D., T. S. Loney, Esq., G. S. Littlejohn, Esq., the Honourable J. G. Farleigh, M.L.C., and J. D. Fisher, Esq.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvii.

Commonwealth Serum Laboratories, Biochemist, Senior Bacteriological Technical Assistant, and Bacteriological Technical Assistant.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	Brunswick Medical Institute. Bendigo Medical Institute. Prahran United F.S. Dispensary. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Medical Officers to the Selwyn Hospital, North Queensland. Brisbane United Friendly Society Institute.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide. Contract Practice, Appointments at Renmark.
WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Penrith, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
TASMANIA. (Hon. Sec., Belgrive, Tasmania.)	Medical Officers in all State-aided Hospitals in Tasmania.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

Jan. 15.—Tas Branch, B.M.A., Council and Annual Meeting.
Jan. 15.—N.S.W. Branch, B.M.A., Ethics Committee; Executive and Finance Committee.
Jan. 17.—Vic. Branch, B.M.A., Council.
Jan. 18.—Queensland Branch, B.M.A., Council.
Jan. 22.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Jan. 29.—N.S.W. Branch, B.M.A., Council.
Jan. 30.—Vic. Branch, B.M.A., Council.
Feb. 1.—Q. Branch, B.M.A., Meeting.
Feb. 6.—Federal Committee of the B.M.A. in Australia, at Melbourne.
Feb. 6.—Vic. Branch, B.M.A., Monthly Meeting; Presentation of Balance Sheet for 1917.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.